KINE 4P82
Fall 2024
Evidence Synthesis
Library Seminar

Ian Gordon

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What is this guide for?

This guide has been designed as a general program guide and is curated by Brock librarians. It features links to most often used resources such as databases for books, peer-reviewed journal articles, theses, dissertations, open educational resources (OEDs), systematic reviews, and more. Use the tabs on the left to navigate through the web page.

Selective course-related guides are provided when appropriate every term.

KINE 1P93 Library Seminar Fall 2024 ppt slides (PDF) and video (YouTube 27:47)

KINE 4P82 Library Seminar Fall 2024 ppt slides (PDF)

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This Course: KINE 4P82

Learning Objectives

By the end of this course the learner will:

1. Gain practical experience working with certified athletic therapists.
2. Apply clinical reasoning and evidence-based practices in the assessment and management of athletic injuries.
3. Understand and demonstrate appropriate professional behavior expected in a healthcare environment, including professionalism, confidentiality, and patient management.
4. Develop key skills such as professionalism, preparation, communication, adaptability, initiative, leadership, and the ability to accept feedback for growth and improvement.
5. Critically assess their learning over the term to foster continuous development.
6. Apply general principles of assessment, modality application, and rehabilitation to facilitate the prevention and care of injuries related to physical activity.
7. Think critically about evidence-based sports medicine literature to enhance the future of clinical practice.

Critically Appraised Topic (25%)

In order to demonstrate critical appraisal skills, individual discovery, and the embrace of evidence-based practice, students will work in groups to complete a critically appraised topic structured for submission to a journal. This project will be completed in phases to allow for feedback throughout the process, maximizing the likelihood of a strong final project.

- Identification of the clinical scenario, PICO, and search strategy will be due on **October 3**. Students are encouraged to discuss their topics with the instructor prior to this date.
- Search strategy and application of inclusion and exclusion criteria to determine the final selection of articles will be due on **October 24.**
- Data extraction tables must be completed by **November 7.**
- The first draft of the critically appraised topic will be due on **November 21.**
- Final written documents will be due, and presentations will occur in class on **November 28.**

KINE 4P82 Critically Appraised Topic Assignment

Purpose: Evidence-based practice involves clinical decision-making and how we integrate available research, experience, and clinical judgment to address a clinical problem. Available research, or evidence, is an important component of quality care, and the ability to search, critically appraise, and synthesize the literature is a crucial skill for athletic therapists. In this assignment, students will work in groups to develop critical appraisal skills, engage in individual discovery, and apply evidence-based practice by completing a Critically Appraised Topic (CAT). The CAT will be formatted according to the submission guidelines of the Journal of Sport Rehabilitation and should address a specific clinical question in sport rehabilitation. This assignment allows you to apply evidence-based practice to real-world clinical scenarios while learning to critically evaluate and appraise research in sport rehabilitation. This project will be completed in phases to allow for feedback throughout the process, enhancing the quality of the final submission.

Assignment Phases and Deadlines:

1. **Identification of Clinical Scenario, PICO, and Search Strategy**
   - **Due Date**: **October 3**
   - **Description**: Define the clinical scenario, develop the clinical question using the PICO format (Patient/Population/Problem, Intervention/Exposure/Test, Comparison, Outcome), and outline the search strategy (databases, search terms, inclusion/exclusion criteria).
2. **Search Strategy and Application of Inclusion/Exclusion Criteria**
   - **Due Date**: **October 24**
   - **Description**: Complete your search saving the results for each database, import search into Covidence, complete the abstract and full-text screening process. Two people must review each article in each phase independently.
3. **Data Extraction Tables**
   - **Due Date**: **November 7**
   - **Description**: Complete data extraction tables summarizing the selected articles (citations, study design, participants, interventions, outcomes, etc.). Ensure that the contribution to the CAT question is clearly extracted and evaluated.
4. **First Draft of the Critically Appraised Topic**
   - **Due Date**: **November 21**
   - **Description**: Bring a draft of the entire CAT, including all sections outlined to class. We will have class time to peer review.
5. **Final Written Submission & Presentations**
   - **Due Date**: **November 28**
   - **Description**: Submit the final written CAT and prepare presentation to present your findings in class. Each group will have 20 minutes for the presentation, with every group member participating. The final submission should adhere to the formatting requirements outlined for the **Journal of Sport Rehabilitation**.

Instructions for Formatting:
Follow the guidelines provided by the **Journal of Sport Rehabilitation** for formatting your written Critically Appraised Topic. Below are the required sections and their descriptions:

1. Structured Abstract (One Page or Less)
- **Clinical Scenario**: Provide a brief description of the clinical scenario leading to your focused clinical question.
- **Clinical Question**: Present the focused clinical question developed using the PICO format.
- **Summary of Key Findings**: Provide a bulleted list of the key clinical findings from your search.
- **Clinical Bottom Line**: State the main takeaway from the available evidence, including the level of available evidence and the strength of recommendations.
- **Strength of Recommendation**: Briefly describe the strength of the evidence.

2. Clinical Scenario
- Provide background information demonstrating the need and clinical relevance of your focused clinical question. This section should be approximately 2-4 paragraphs.

3. Focused Clinical Question
- Present the clinical question using the **PICO** format:
  - **Patient/Client and Condition**
  - **Intervention (or Assessment)**
  - **Comparison**
  - **Outcome(s)**

4. Search Strategy and Criteria
- Clearly describe the process used to search for evidence. This should include:
  - Databases and search terms used
  - Search limits and timeframe
  - Inclusion and exclusion criteria

5. Evidence of Quality Assessment
- Describe the quality assessment scale used to appraise the selected evidence. Use **accepted standards** for evidence-based practice.

6. Summary of Search and Key Findings
- Provide a narrative summary of the results of your search. Describe the quality and relevance of the evidence selected.

7. Results of Quality Assessment
- Explain why the studies were selected, including their level of evidence, validity, and quality assessment results. Refer to the **Center for Evidence-Based Medicine (2011)** definitions for level of evidence.

8. Summary of Best Evidence (Table)
- Create a table summarizing the included evidence. The table should have the following headings/rows:
  - Citation
  - Study design

- Participants
- Inclusion/exclusion criteria
- Intervention investigated
- Outcome measures
- Results
- Level of evidence
- Quality assessment score
- Contribution to CAT question (rated 1-5 based on how well it answers the question)

9. Clinical Bottom Line

- **Strength of Recommendation**: Provide the strength of recommendation based on the collective findings. Use the following text:
  "Collectively, the body of evidence included to answer the clinical question aligns with the strength of recommendation of [insert: A, B, C]."
- **Answer to Clinical Question**: Summarize the clinical bottom line using the appraised evidence.

10. Implications for Practice, Education, and Future Research

- Discuss practical implications based on your appraisal. Include any observations regarding the intervention's common use, cost, or clinical significance.

11. References and Appendices

- Provide a full reference list following the required style. Include any appendices if applicable.

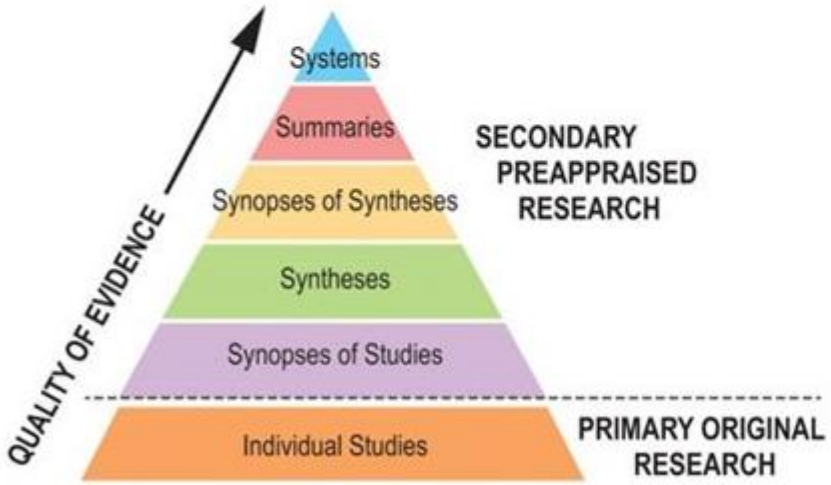
Tips for Success:

- **Start Early**: Begin identifying your clinical scenario and formulating your PICO question early. Consult with your instructor if you need help refining your question. Conduct preliminary searches to ensure your topic has enough relevant studies to complete the CAT but does not already have recent systematic reviews (within the last 3-5 years). This increases the likelihood of publication potential.
- **Stay Organized**: Keep detailed records of your search strategy, including databases and search terms, so you can easily reference them during your analysis and in your final submission.
- **Use the Resources**: The library offers a wealth of resources to support your project, including workshops on search strategies and consultations for citation management. Take advantage of these tools early in the process. Review multiple examples of published CATs on Brightspace and available online so you have a good idea of what the end product should look like.
- **Seek Feedback**: Use the feedback provided at each phase to improve your final submission. Peer and instructor input will help strengthen your appraisal and analysis.

What’s the big deal with evidence synthesis research?

EVIDENCE SYNTHESIS

- Synthesized evidence is considered:
  - less biased
  - more rigorous
  - more generalizable
- Hierarchy of pre-processed evidence



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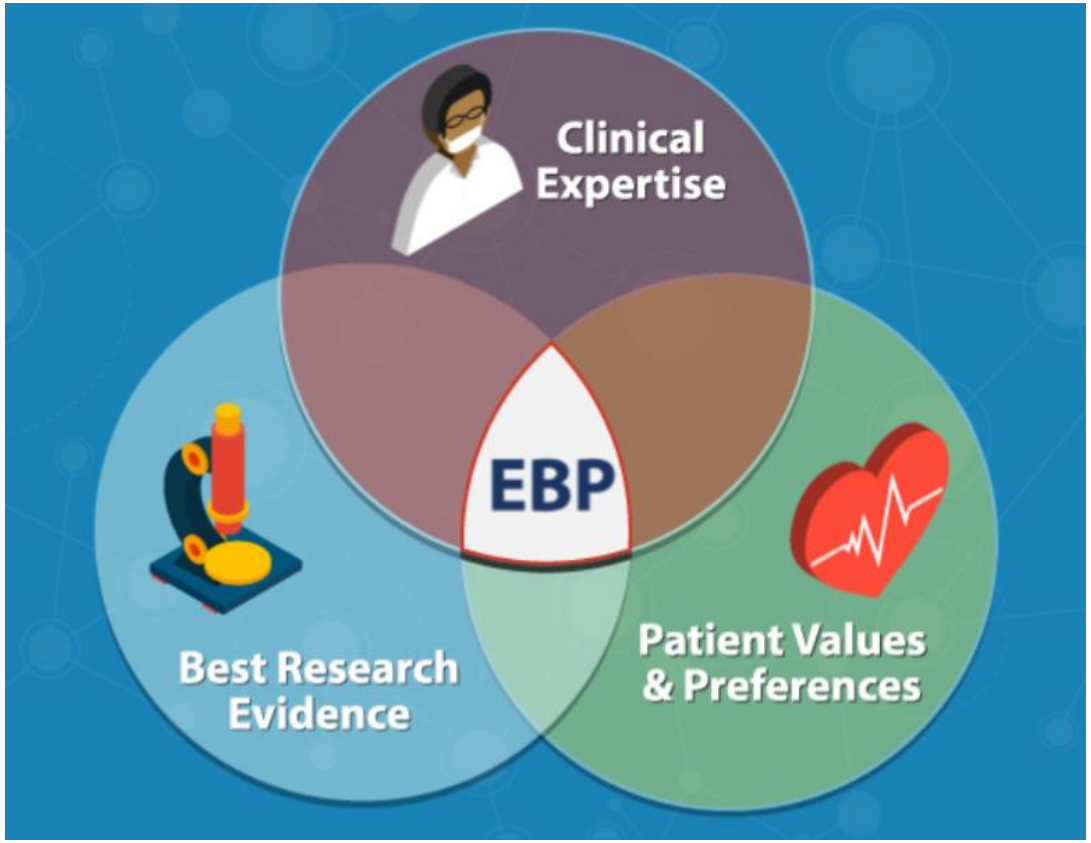

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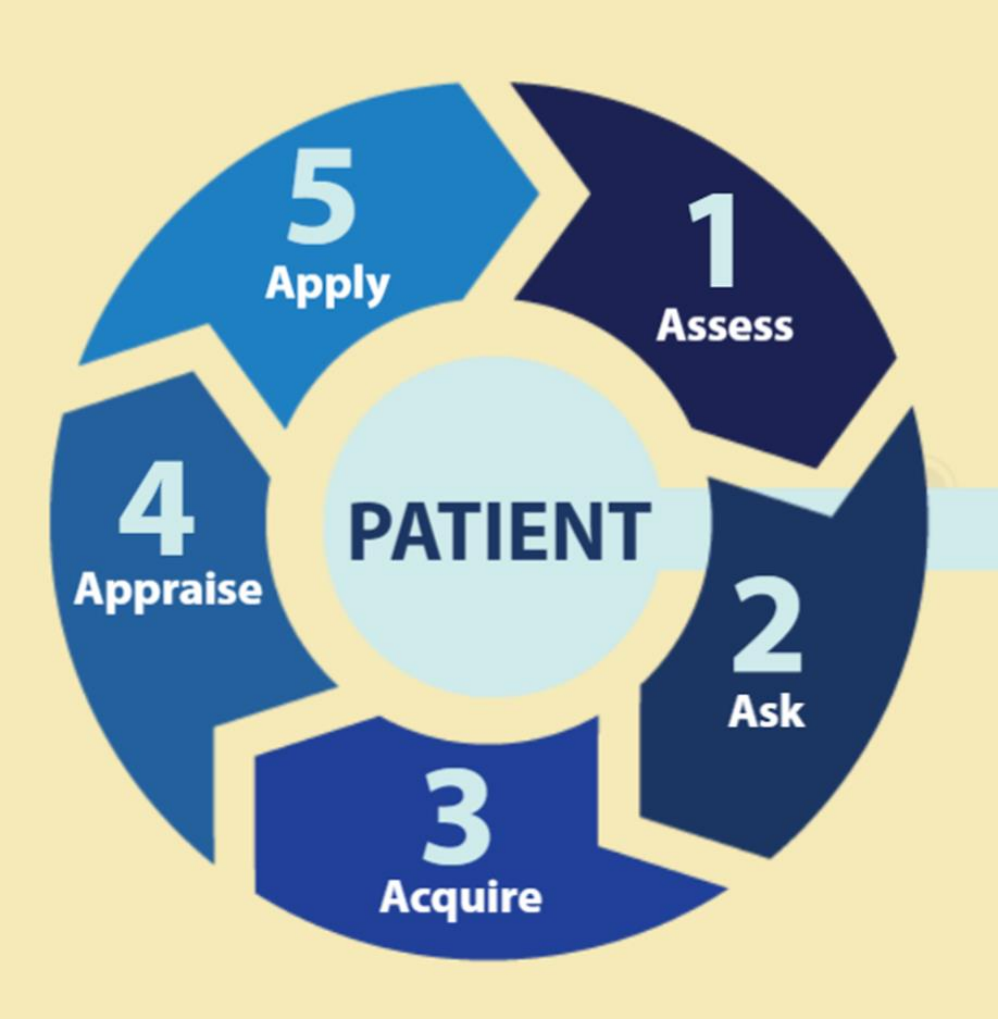

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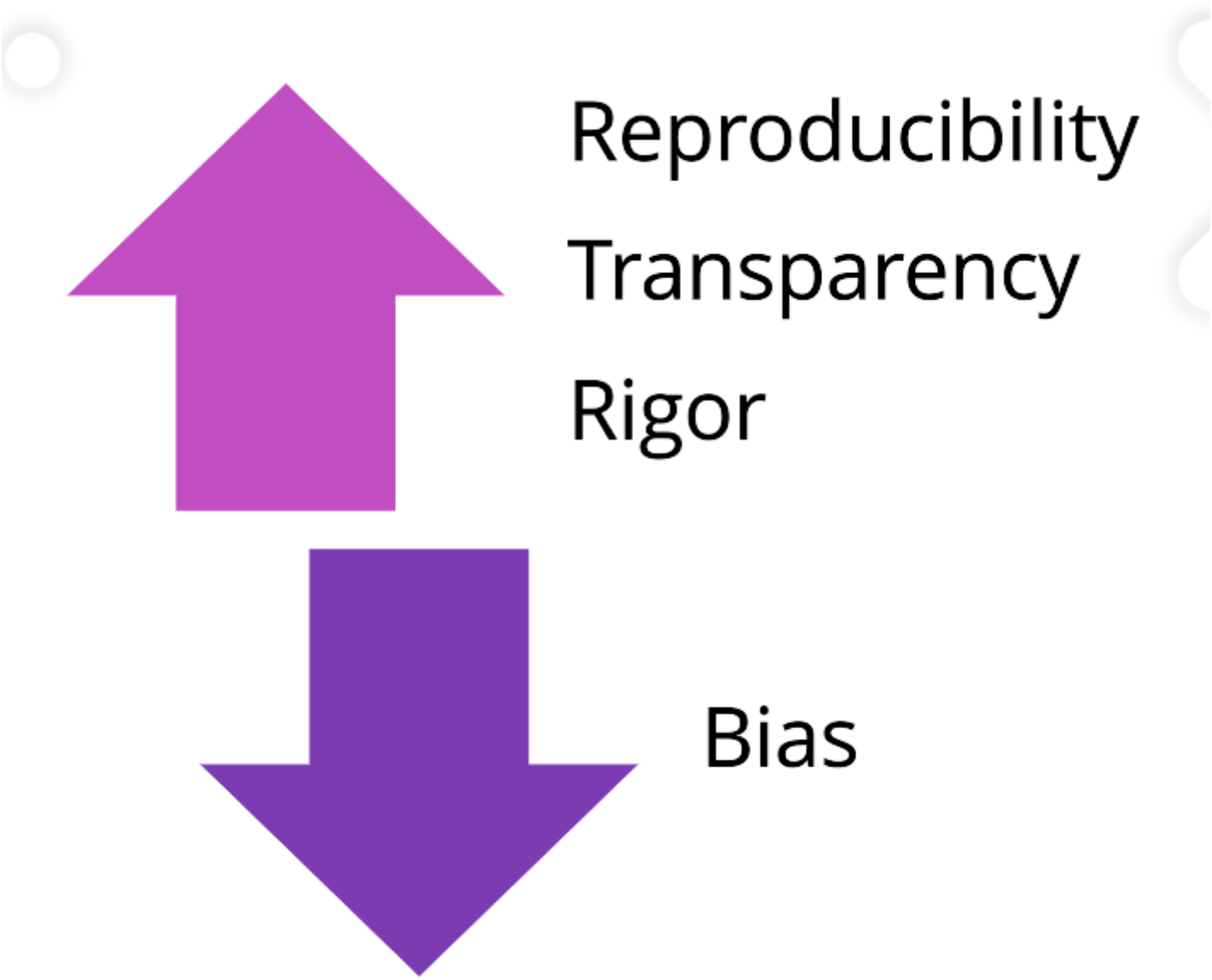
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What are the top 5 injuries addressed by athletic therapists?

Athletic therapists primarily focus on the prevention, assessment, and rehabilitation of musculoskeletal injuries, especially in sports and physical activity. The top five injuries they commonly address include:

1. **Ankle Sprains:** One of the most frequent injuries, often caused by rolling or twisting the ankle during activities, leading to ligament damage.
2. **Knee Injuries (ACL, MCL, Meniscus):** Knee injuries are common, particularly in sports that involve sudden stops, jumps, or directional changes. Anterior cruciate ligament (ACL) tears, medial collateral ligament (MCL) injuries, and meniscus tears are typical.
3. **Hamstring Strains:** Overstretching or tearing the hamstring muscles, often due to sprinting or quick acceleration, is a common injury in sports involving running.
4. **Shoulder Injuries (Rotator Cuff Strains, Dislocations):** Shoulder injuries, including rotator cuff strains, dislocations, and labral tears, are often seen in sports requiring overhead motions, like baseball, swimming, or tennis.
5. **Groin Strains:** This occurs when the muscles of the inner thigh (adductors) are overstretched or torn, typically seen in sports involving sudden directional changes, like soccer or hockey.

These injuries typically require various stages of care, including acute management, rehabilitation exercises, and injury prevention strategies.

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MEDLINE is available via OVID, PubMed, SciFinder-n and Web of Science Complete. Web of Science Complete includes Web of Science Core Collection, BIOSIS and more.

Several databases provide access to regional, national and international news articles.

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- Web of Science Core Collection
  - A multidisciplinary index of citations to art finding journal articles published on a topi
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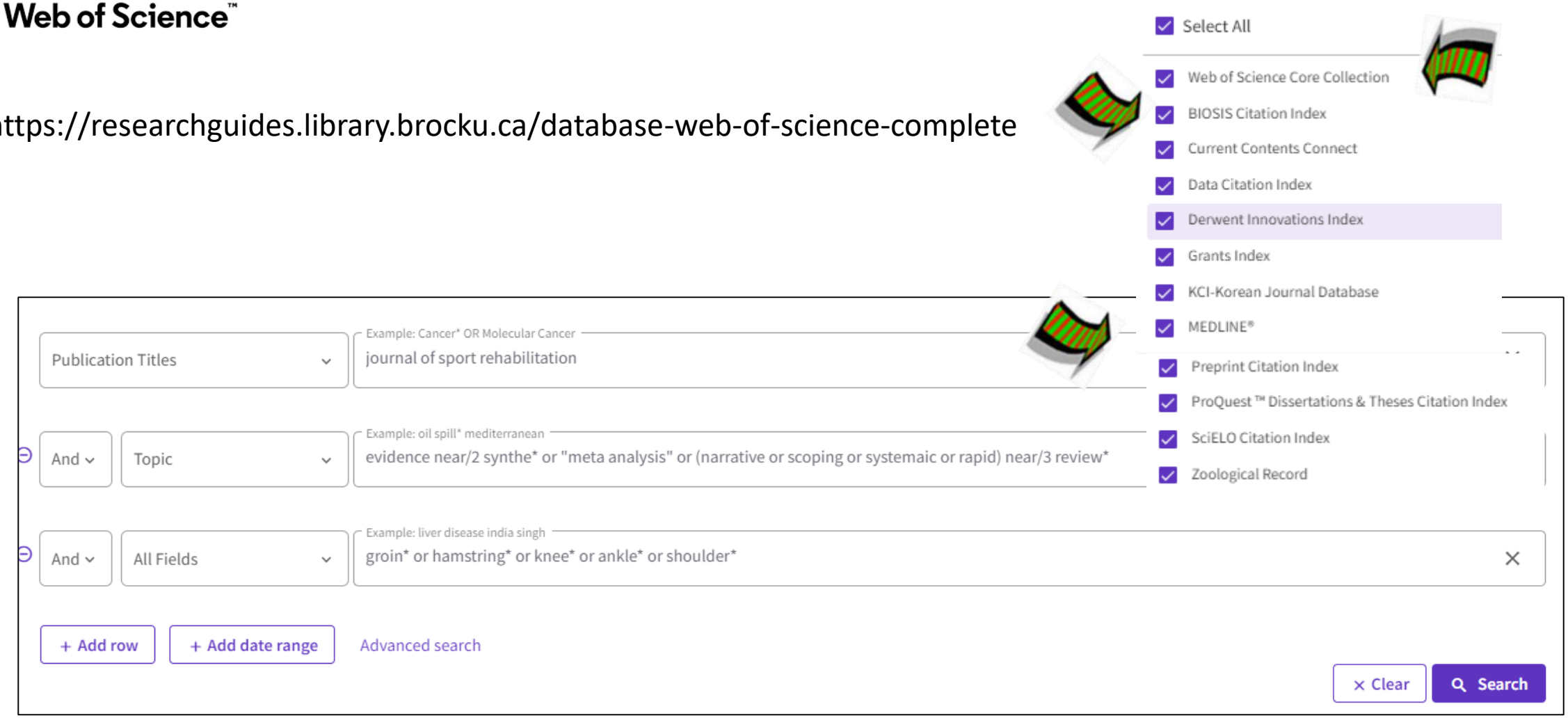

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1 **Scapular Kinematics and Subacromial-Impingement Syndrome: A Meta-Analysis**

Timmons, MK; Thigpen, CA; (...); Michener, LA

Nov 2012 | JOURNAL OF SPORT REHABILITATION 21 (4) , pp.354-370

Context: The literature does not present a consistent pattern of altered scapular kinematics in patients with shoulder-impingement syndrome (SIS). Objectives: To perform meta-analyses of published comparative studies to determine the consistent differences in scapular kinematics between subjects with SIS and controls. In addition, the ... Show more

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45 References

Related records

2 **Functional Rehabilitation Interventions for Chronic Ankle Instability: A Systematic Review**

Webster, KA and Gribble, PA

Feb 2010 | JOURNAL OF SPORT REHABILITATION 19 (1) , pp.98-114

Context: Functional rehabilitation is often employed for ankle instability. but there is little evidence 10 support its efficacy. especially in those with chronic ankle instability (CAI). Objective: To review studies using both functional rehabilitation interventions and functional measurements to establish the effectiveness of functional rehabilitation I ... Show more

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3 **Reliability of Isokinetic Assessment of Shoulder-Rotator Strength: A Systematic Review of the Effect of Position**

Edouard, P; Samozino, P; (...); Gremeaux, V

Aug 2011 | JOURNAL OF SPORT REHABILITATION 20 (3) , pp.367-383

Context: Isokinetic assessment of shoulder internal- (IR) and external-rotator (ER) strength is commonly used with many different postures (sitting, standing, or supine) and shoulder positions (frontal or scapular plane with 45 degrees or 90 degrees of abduction). Objective: To conduct a systematic review to determine the influence of position on the in ... Show more

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1 **Psychological Interventions Can Reduce Injury Risk in Athletes: A Critically Appraised Topic**

Ericksen, S; Dover, G and DeMont, R

Feb 2022 | JOURNAL OF SPORT REHABILITATION 31 (2) , pp.224-229

Clinical Scenario: Injury prevention programs are becoming standard practice for reducing sports-related injuries, but most programs focus on musculoskeletal elements. Psychological factors can be strong predictors of sports-related injuries and there is recent evidence that suggests psychological interventions can be effective at reducing injury risk. It ... Show more

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2 **Current Technologies and Practices to Assess External Training Load in Paralympic Sport: A Systematic Review**

Stieler, E; de Mello, MT; (...); Silva, A

Aug 2023 | JOURNAL OF SPORT REHABILITATION 32 (6) , pp.635-644

Context: Knowing the methods to assess the external load in Paralympic sports can help multidisciplinary teams rely on scientific evidence to better prescribe and monitor the athlete's development, improving sports performance and reducing the risk of injury/ illness of Paralympic athletes. Objectives: This review aimed to systematically explore the curre ... Show more

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3 **The Effect of Exercise Therapy Interventions on Shoulder Pain and Musculoskeletal Risk Factors for Shoulder Pain in Competitive Swimmers: A Scoping Review**

Yoma, M; Herrington, L and Mackenzie, TA

Jul 2022 | JOURNAL OF SPORT REHABILITATION 31 (5) , pp.617-628

Context: Shoulder pain is the main cause of missed or modified training in competitive swimmers. Exercise therapy can improve the outcomes, yet uncertainty exists regarding the characteristics of these interventions. Objectives: The primary aim was to describe the evidence base relating to the effectiveness of exercise therapy interventions on shoulder ... Show more

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The Effect of Exercise Therapy Interventions on Shoulder Pain and Musculoskeletal Risk Factors for Shoulder Pain in Competitive Swimmers: A Scoping Review

By Yoma, M (Yoma, Matias) [1]; Herrington, L (Herrington, Lee) [1]; Mackenzie, TA (Mackenzie, Tanya A.) [1]

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Source JOURNAL OF SPORT REHABILITATION
Volume: 31 Issue: 5 Page: 617-628
DOI: 10.1123/jsr.2021-0403

Published JUL 2022

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Document Type Review

Abstract Context: Shoulder pain is the main cause of missed or modified training in competitive swimmers. Exercise therapy can improve the outcomes, yet uncertainty exists regarding the characteristics of these interventions. Objectives: The primary aim was to describe the evidence base relating to the effectiveness of exercise therapy interventions on shoulder pain and shoulder musculoskeletal risk factors for shoulder pain in swimmers. The secondary aim was to

Keywords Author Keywords: swimming; shoulder injury; therapeutic exercises; injury prevention
Keywords Plus: STRENGTH-TRAINING-PROGRAM; ROTATOR CUFF BALANCE; ADOLESCENT SWIMMERS; COLLEGIATE SWIMMERS; OVERUSE INJURIES; SPORTS INJURIES; MANUAL THERAPY; PREVENTION; LAND; REHABILITATION

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Categories/ Classification Research Areas: Rehabilitation; Sport Sciences
Citation Topics: 1 Clinical & Life Sciences > 1.34 Orthopedics > 1.34.485 Shoulder
Sustainable Development Goals: 05 Gender Equality

Web of Science Categories Rehabilitation; Sport Sciences

MeSH Terms *From MEDLINE®*

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- Humans
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- Scapula
- Shoulder / physiology
- Shoulder Pain* / etiology
- Shoulder Pain* / therapy
- Swimming / physiology

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- Swimming / physiology

Similar articles

Investigation of In-Water and Dry-Land Training Programs for Competitive Swimmers in the United States.
Tate A, Harrington S, Buness M, Murray S, Trout C, Meisel C.
J Sport Rehabil. 2015 Nov;24(4):353-62. Epub 2014 Oct 30.
PMID: 26204528

Effect of a 6-week strengthening program on shoulder and scapular-stabilizer strength and scapular kinematics in division I collegiate swimmers.
Hibberd EE, Oyama S, Spang JT, Prentice W, Myers JB.
J Sport Rehabil. 2012 Aug;21(3):253-65. doi: 10.1123/jsr.21.3.253. Epub 2012 Mar 2.
PMID: 22387875 Clinical Trial.

Does a water-training macrocycle really create imbalances in swimmers' shoulder rotator muscles?
Batalha N, Marmeleira J, Garrido N, Silva AJ.
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PMID: 24754705 Clinical Trial.

Shoulder pain and injury risk factors in competitive swimmers: A systematic review.
McKenzie A, Larequi SA, Hams A, Headrick J, Whiteley R, Duhig S.
Scand J Med Sci Sports. 2023 Dec;33(12):2396-2412. doi: 10.1111/sms.14454. Epub 2023 Jul 28.
PMID: 37515375 Review.

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Effects of a dry-land strengthening exercise program with elastic bands following the Kabat D2 diagonal flexion pattern for the prevention of shoulder injuries in swimmers.
Della Tommasina I, Trinidad-Morales A, Martínez-Lozano P, González-de-la-Flor Á, Del-Blanco-Muñiz JÁ.
Front Physiol. 2023 Nov 13;14:1275285. doi: 10.3389/fphys.2023.1275285. eCollection 2023.
PMID: 38028779 Free PMC article.

Shoulder and Neck Pain in Swimmers: Front Crawl Stroke Analysis, Correlation with the Symptomatology in 61 Masters Athletes and Short Literature Review.
Rinonapoli G, Ceccarini P, Manfreda F, Talesa GR, Simonetti S, Caraffa A.
Healthcare (Basel). 2023 Sep 27;11(19):2638. doi: 10.3390/healthcare11192638.
PMID: 37830674 Free PMC article.

Yoma, M., Herrington, L., Mackenzie, T., & Almond, T. (2021). Training Intensity and Shoulder Musculoskeletal Physical Quality Responses in Competitive Swimmers. *Journal of Athletic Training, 56(1*), 54–63. https://doi.org/10.4085/1062-6050-0357.19

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American Psychological Association 7th edition

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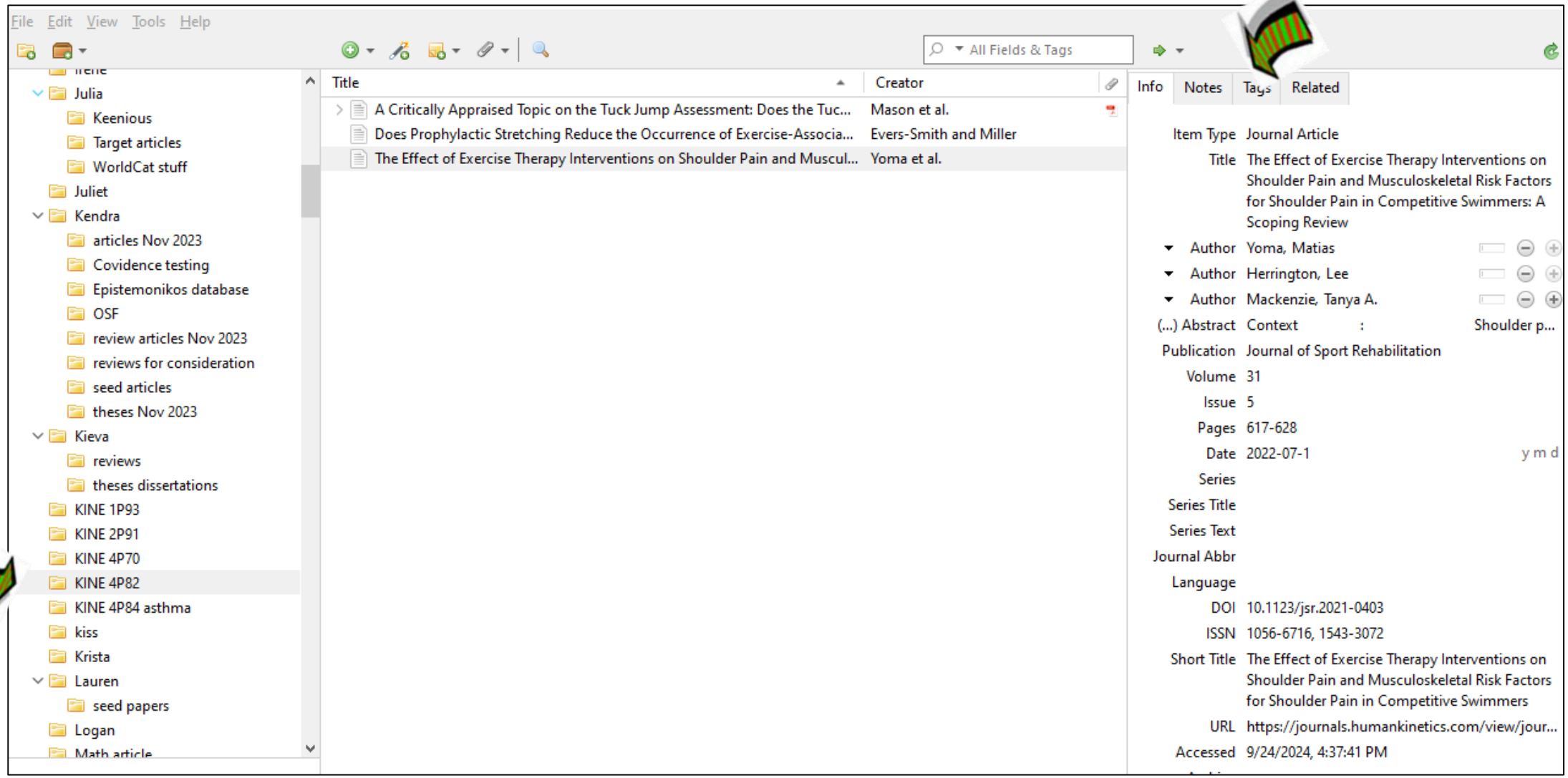

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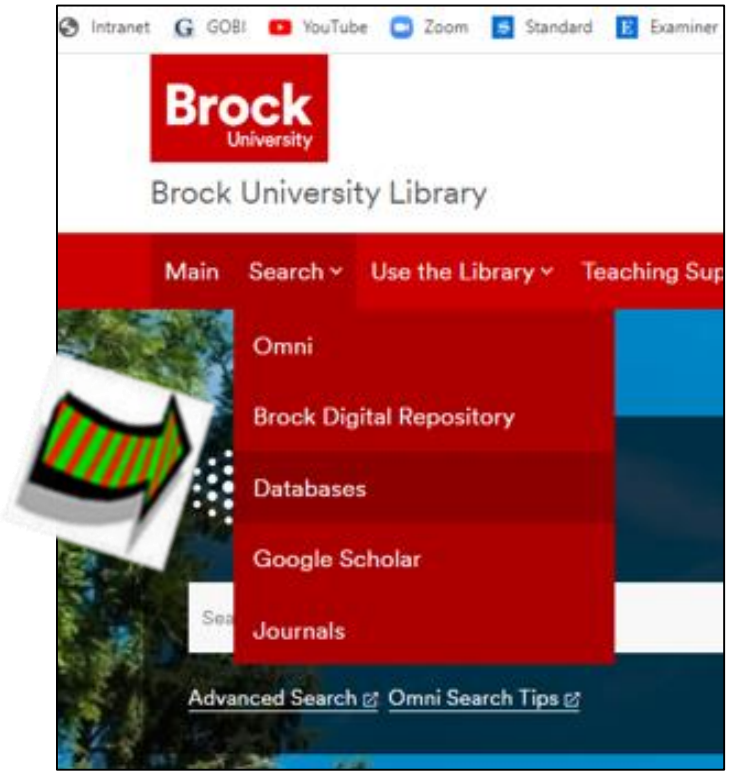

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The effect of exercise therapy interventions on shoulder pain and musculoskeletal risk factors for shoulder pain in competitive swimmers: a scoping review

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Journal of sport rehabilitation, 2022 · journals.humankinetics.com

Context : Shoulder pain is the main cause of missed or modified training in competitive swimmers. Exercise therapy can improve the outcomes, yet uncertainty exists regarding the characteristics of these interventions. ***Objectives*** : The primary aim was to describe the evidence base relating to the effectiveness of exercise therapy interventions on shoulder pain and shoulder musculoskeletal risk factors for shoulder pain in swimmers. The secondary aim was to identify gaps in the literature and provide recommendations for

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SCOPING REVIEW

The Effect of Exercise Therapy Interventions on Shoulder Pain and Musculoskeletal Risk Factors for Shoulder Pain in Competitive Swimmers: A Scoping Review

Matias Yoma, Lee Herrington, and Tanya A. Mackenzie

Context: Shoulder pain is the main cause of missed or modified training in competitive swimmers. Exercise therapy can improve the outcomes, yet uncertainty exists regarding the characteristics of these interventions. ***Objectives:*** The primary aim was to describe the evidence base relating to the effectiveness of exercise therapy interventions on shoulder pain and shoulder musculoskeletal risk factors for shoulder pain in swimmers. The secondary aim was to identify gaps i
recommendations for future research and practice. ***Evidence Acquisition:*** A scoping review method
the search of MEDLINE, PubMed, Scopus, Web of Science, and CINAHL databases. The authors inc
(except clinical commentaries and conference papers) that assess the effect of exercise therap
musculoskeletal risk factors for shoulder pain in swimmers. The literature was critically appr
Down and Black checklist. ***Evidence Synthesis:*** From 452 papers identified, 14 studies were in
exercise program of 6 to 8 weeks, including strengthening exercises (shoulder external rotator and scap
stretches (pectoral muscles), can decrease the incidence of shoulder pain in swimmers. Furthermore,
and stretches with manual therapy techniques can help to decrease shoulder pain in injured swimmer
strengthening program of more than 12 weeks increased shoulder external rotation peak force, endura
internal rotation ratio; however, this was not associated to decreases in pain. Finally, open kinetic cha
program are superior to close kinetic exercises and water training for improving shoulder exte
endurance. ***Conclusions:*** Exercise therapy has positive effects on reducing the incidence of shoulde
shoulder pain, and improving shoulder musculoskeletal risk factors in competitive swimmers. Howe
limitations of the studies, caution must be used when applying these results in practice. Future rese
quality randomized controlled trials for prevention and management of shoulder pain in swimmers

Keywords: swimming, shoulder injury, therapeutic exercises, injury prevention

Context

The shoulder is the most commonly injured joint in competitive swimmers and the main cause of missed or modified training.[1,2] The prevalence and incidence of shoulder pain in swimmers are high ranging between 23% and 91%[5–6] and 30% and 47%,[1,7–9] respectively. Importantly, the latest research has not shown a decline in prevalence[3,6] or incidence.[7,8]

Sports injuries are multifactorial, including the interaction between intrinsic (ie, athlete related) and extrinsic (ie, environmental) risk factors.[10,11] Regarding intrinsic factors, several modifiable (eg, training related, musculoskeletal physical qualities, etc) and nonmodifiable risk factors (level of competition, history of shoulder pain, etc) have been reported as potential contributors to shoulder pain in swimmers.[12,13] Modifiable risk factors have received much interest in the athletic population as they might help to identify athletes at risk of injury.[14] Importantly, they can also be changed through therapeutic interventions.[15,16] Within modifiable risk factors, shoulder musculoskeletal qualities have been extensively studied in swimmers. Studies have shown that alterations in shoulder range of motion,[9,17–19] flexibility,[19,20]
strength,[8,19,21,22] endurance,[7,23,24]
associated with shoulder pain.

Several reviews and clinical c
gest including some of these musc
tions to reduce the risk or mana
studies recommend incorporating s
ening exercises (targeting scapular,
to the interventions. Despite the nu
systematically analyzed and summ
the effects of exercise therapy o
Furthermore, the effects of exerci
risk factors associated with shoulde
either.

It might prove that, this limited
the incidence and prevalence of sho
of the lack of clarity around appr
tions. A comprehensive review of
research's strengths and flaws, the
exercise therapy interventions used
etc). This information can help pra
mers to choose the most appropria
and manage shoulder pain. The pri
identify and describe the evidence b
of exercise therapy interventions
musculoskeletal risk factors for sh
secondary aim was to identify gap

The authors are with the Centre for Health Sciences, School of Health and Society, University of Salford, Manchester, United Kingdom. Yoma (matiasyoma@gmail.com) is corresponding author.

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Table 1 Description of Included Studies: Exercise Therapy Intervention on Shoulder Pain and/or Musculoskeletal Risk Factors for Shoulder Pain in Swimmers

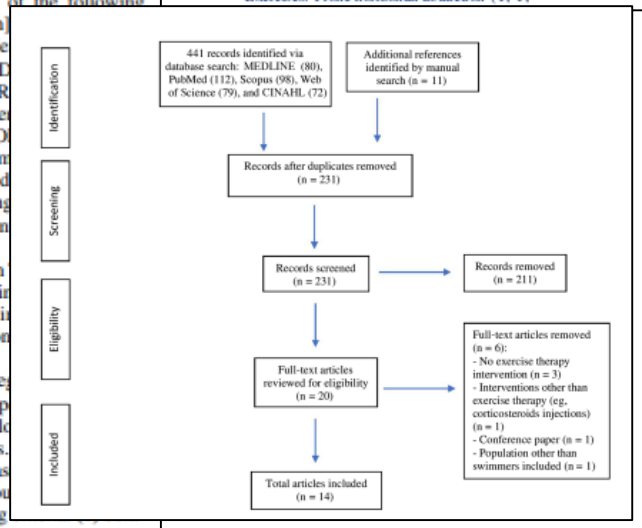
Study	Population and study design	Interventions	Outcome measures	Results	Risk of bias
Studies including shoulder pain and risk factors as an outcome measure					
Swanik et al[43]	Competitive swimmers IG: N = 13 (range = 18–22 y old) CG: N = 13 (range = 18–22 y old), 13 F:13 M Design: RCT	Period: 6 wk, 3 times a week *Strengthening*: 3 × 10 rep with resistance tubing and weights. Progression increasing loads when completing repetitions with ease. Exercises: shoulder flexion, extension, IR 90°, ER 90°, diagonal pattern (D2), prone exercises at 120° and 90° abduction, and push-up plus	Pain: "pain that interferes with practice and presented as a dull aching pain at night, while swimming or a feeling of the shoulder being tired" Isokinetic force and e IR, retraction, protrac diagonal pattern	Pain: >incidence in CG (episodes = 4.6 [4.7]) compared with IG (episodes = 1.8 [2.1]) (*P* = .02) Strength: both groups increased strength in all	High (12/28)
Kurtz[44]	Competitive swimmer with left anterior shoulder pain y old) male se report	Period: 4 wk, 3 times a week (first 2 wk), and 2 times a week (last 2 wk) *Myofascial release*: upper trapezius, pectoralis major and minor, and subscapularis muscles *Joint manipulation*: C7–T1, T4–T6, and left first and second ribs *Strengthening*: 3 × 12–15 rep with weights. Progression NR Exercises: Prone horizontal abduction (Y, T,	Pain: VAS (0–10) Active shoulder ROM movements NR Manual strength testi groups NR		

Search and Selection of the Studies

MEDLINE, PubMed, Scopus, Web of Science, and CINAHL databases were searched using a combination of the following terms: competitive swimmers (swimming [Mesh] [Mesh] OR swim), AND shoulder pain (shoulde OR shoulder function OR painful shoulder), AND (exercise [Mesh] OR rehabilitation [Mesh] OR [Mesh] OR resistance training [Mesh] OR the [Mesh] OR physical therapy modalities [Mesh] O ing exercises [Mesh]). The search was perform available to August 2021, and no limits were used of competition as a means to include a wider rang search of the literature was performed independen ers (M.Y. and a nonauthor).

The definition of injury or pain was based on Olympic Committee consensus statement in i in sport.[38] It was defined as shoulder pain or i in medical attention, time loss, or modification competition (self-reported, symptom based, based).[38] Exercise therapy was defined as "a re physical activities designed and prescribed for sp goals, with the purpose to restore normal muscul or to reduce pain caused by diseases or injuries.

The eligibility criteria of the studies were bas acronym (population, intervention, comparison, ou design). The studies needed to meet the following petitive swimmers' population, (2) exercise therapy interventions, (3) outcome measures including shoulder pain and/or s musculoskeletal risk factors, and (4) any study design were ered, except for conference papers and clinical commentaries inclusion criteria included articles available in full text and pu in English. Exclusion criteria included studies conducted on s nized swimmers, water polo players, and triathletes. Studies gating a specific shoulder diagnosis (eg, postoperative mana painful os acromiale, etc) or performing an intervention oth exercise therapy (eg, corticoid injections) were also exclude M.Y. and L.H. screened the articles for eligibility independently, with T.A.M. acting as arbitrator for any disagreements.



Conclusions

Through this scoping review, we have found that an exercise program including strengthening exercises and stretches can decrease the incidence of shoulder pain and improve shoulder musculoskeletal risk factors in swimmers. Also, combination of exercises and stretches with manual therapy techniques can help to

Effect of Exercise Therapy on Musculoskeletal Risk Factors

Another finding of our study was that strengthening programs of more than 12 weeks increased shoulder ER force, endurance, and ER/IR ratio in competitive swimmers when compared with interventions of less duration.[15,16] Regarding the duration of the intervention, studies[58,59] support these findings showing that athletes increase their strength after a similar period. Importantly, the changes were reported in shoulder ER endurance and force. These results might be relevant as several studies[7,23,24] have shown that reduced shoulder ER endurance is a modifiable risk factor for shoulder pain in swimmers. During a swimming stroke, the infraspinatus muscle controls the internal rotator forces of the subscapularis muscle during the midrecovery phase; whereas, the teres minor muscle controls the internal rotator forces of the pectoralis major muscle during the pull phase.[32] Investigators[60] have indicated that decreased infraspinatus activity can lead to glenohumeral instability, which may result in functional impingement. Although absolute shoulder strength is important in swimmers, muscle balance is also relevant.[22,61] In this review, we found that improvements in ER strength after an exercise program were reflected in an increase of the conventional ER/IR ratio (concentric ER: concentric IR).[15] Swimmers tend to develop lower conventional

References

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3. Holt K, Boettcher C, Halaki M, Ginn KA. Humeral torsion and shoulder rotation range of motion parameters in elite swimmers. *J Sci Med Sport*. 2017;20(5):469–474. doi:10.1016/j.jsams.2016.10.002
4. McMaster WC, Troup J. A survey of interfering shoulder pain in United States competitive swimmers. *Am J Sports Med*. 1993;21(1):67–70. doi:10.1177/036354659302100112

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Are we answering this research question?

What are you intending to do with this research?

Is it worth registering this protocol?

https://www.crd.york.ac.uk/prospero

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13/01/2020	Effectiveness of endurance training on physiological adaptations in paraplegic patients: a systematic review [CRD42020128218]		Review Ongoing
28/04/2020	A systematic review of 3-dimensional scapular kinematics in overhead sports athletes and controls: an initial framework to clinically differentiate scapular movement adaptations from scapular movement impairments. [CRD42020152455]		Review Ongoing
10/07/2020	Indications and outcomes of glenoid osteotomy: a systematic review [CRD42020161836]		Review Ongoing
04/05/2020	Ironman distance triathlon musculoskeletal injuries: a systematic review [CRD42020169743]		Review Ongoing
05/07/2020	Association between lower limb and trunk strength and stability on performance and shoulder injury in overhead athletes: a systematic review [CRD42020184418]		Review Ongoing

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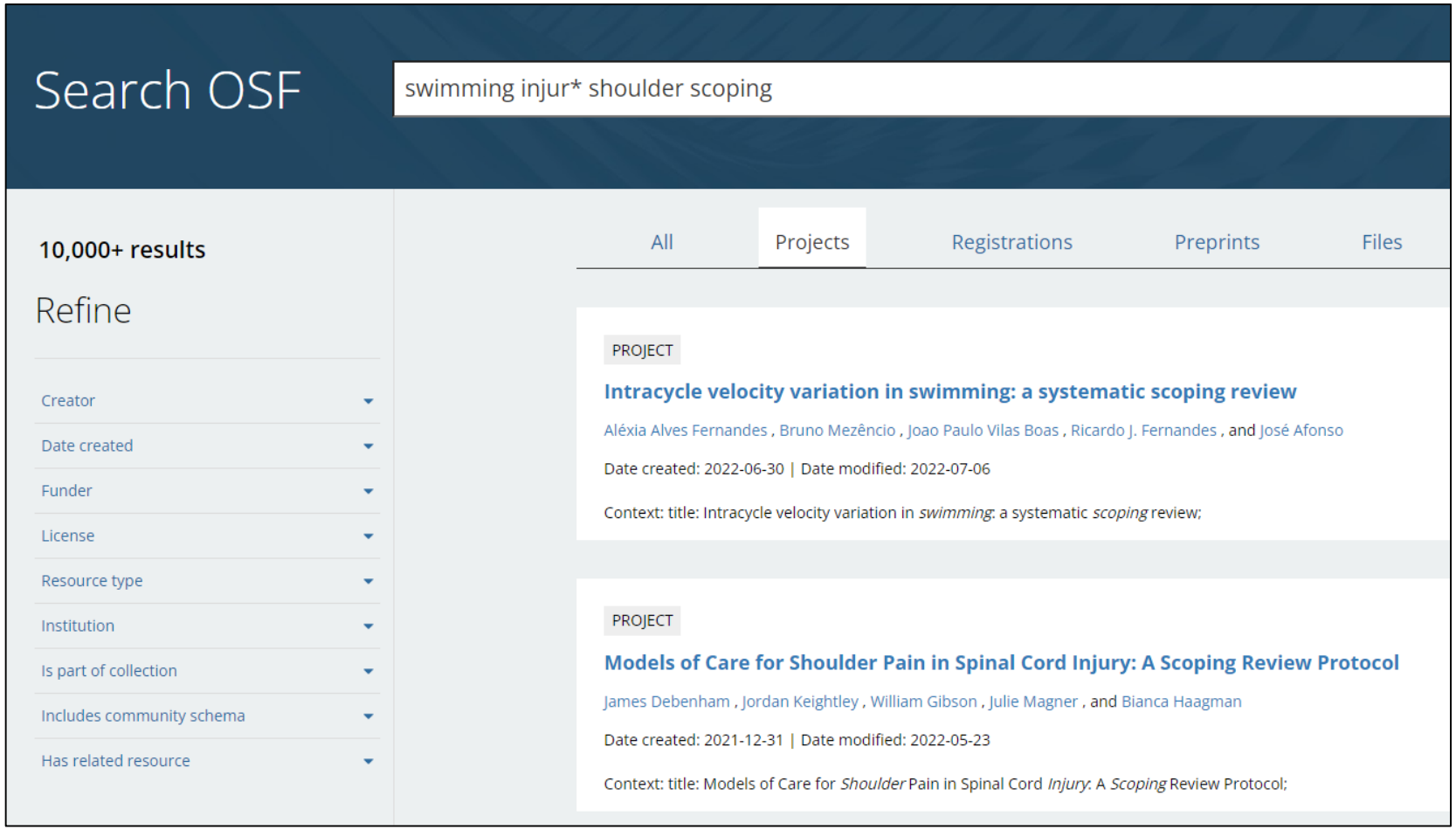

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MeSH terms

- Exercise Therapy* / methods
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- Risk Factors
- Scapula
- Shoulder / physiology
- Shoulder Pain* / etiology
- Shoulder Pain* / therapy
- Swimming / physiology

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1 **The methodology of resistance training is crucial for improving short-medium distance front crawl performance in competitive swimmers: a systematic review and meta-analysis**

Jin, GL; Jin, YQ; (...); Lin, SC

Jul 26 2024 | FRONTIERS IN PHYSIOLOGY 15

Background Resistance training is often a part of the routine training regimen for competitive swimmers. However, due to the variety of resistance training methodology, the results can be inconsistent and sometimes unsatisfactory. Clear recommendations are still lacking at present. Aims 1) Quantify the impact of resistance training on swi ... Show more

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2 **Update on Rehabilitation Strategies for Swimmers' Shoulder: A Narrative Review**

Dcosta, S and Nair, A

2024Jun 2024 (Early Access) | JOURNAL OF HEALTH AND ALLIED SCIENCES NU

Swimmers' shoulder is one of the common overuse injuries having multifactorial causes with a gradual onset. Swimmers' experience pain in the pull-through phase, during the mid-stroke wherein the arm is maximally internally rotated and adducted. This occurs due to a significant amount of force generated by the pectorals, latissimus dorsi, subscapu ... Show more

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Bales, J and Bales, K

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Most triathlon overuse injuries occur due to the running and cycling aspects of the sport. By nature of swimming being a non weight-bearing sport, triathletes have a tendency to use swimming for rehabilitation and recovery. Swimming has a significantly lower injury rate than the other 2 disciplines in a triathlon. Most triathletes use the freestyle stroke, be ... Show more

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Competitive swimming is one of the most demanding and time-consuming sports. Swimmers at elite level practice 20-30 h per week. During 1 year's practice, the average top level swimmer performs more than 500,000 stroke revolutions per arm. These innumerable repetitions over many years of hard training together with an increasing muscular imbal ... Show more

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   Pediatr Exerc Sci. 2024 Aug 28:1-11. doi: 10.1123/pes.2024-0021. Online ahead of print.
   PMID: 39209279

2. Beyond heatwaves: A nuanced view of temperature-related mortality.
   Bouchama A, Mündel T, Laitano O.
   Temperature (Austin). 2024 Mar 4;11(3):190-202. doi: 10.1080/23328940.2024.2310459. eCollection 2024.
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3. BLADDER score: evaluating a tool to support urinary diagnostic and antibiotic stewardship in hospitalized adults.
   Langford BJ, Amoah S, Hansen J, Hudd L, Almohri H, Wright J.
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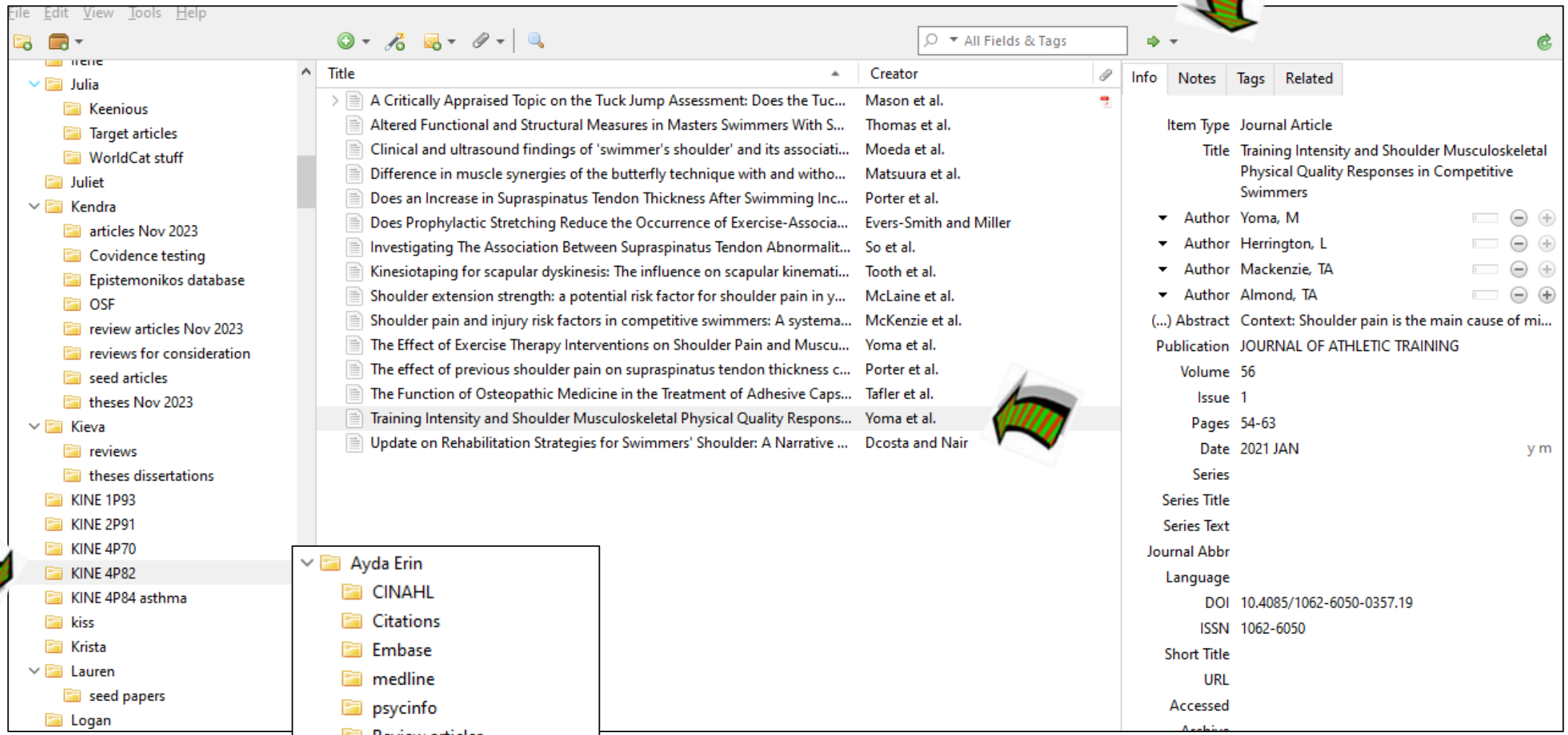

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Welcome

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Welcome to the research guide for Evidence Synthesis.

Use this guide to get oriented to the best practices and resources for conducting evidence synthesis research, including systematic and scoping reviews.

The Library's team of evidence synthesis experts is happy to help!

Attribution

STEPS IN EVIDENCE SYNTHESIS

Evidence synthesis generally involves these steps:

- Stating the objectives of the research
- Defining eligibility criteria for studies to be included and excluded
- Identifying (all) potentially eligible studies
- Screening for inclusion and exclusion
- Extracting data from the final set of screened studies
- Appraising the final set of studies
- Applying statistical analysis, if applicable
- Preparing a structured report of the research

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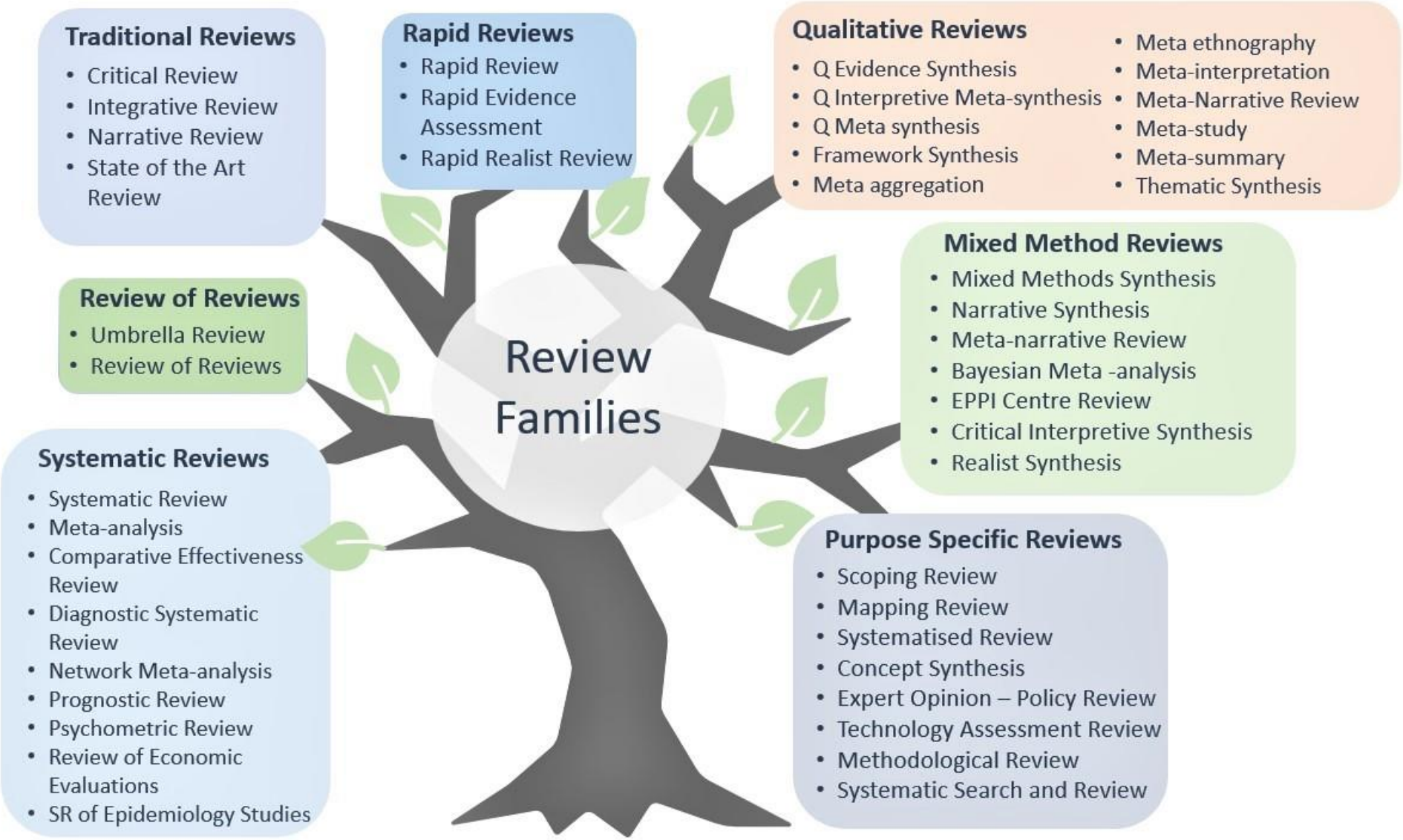

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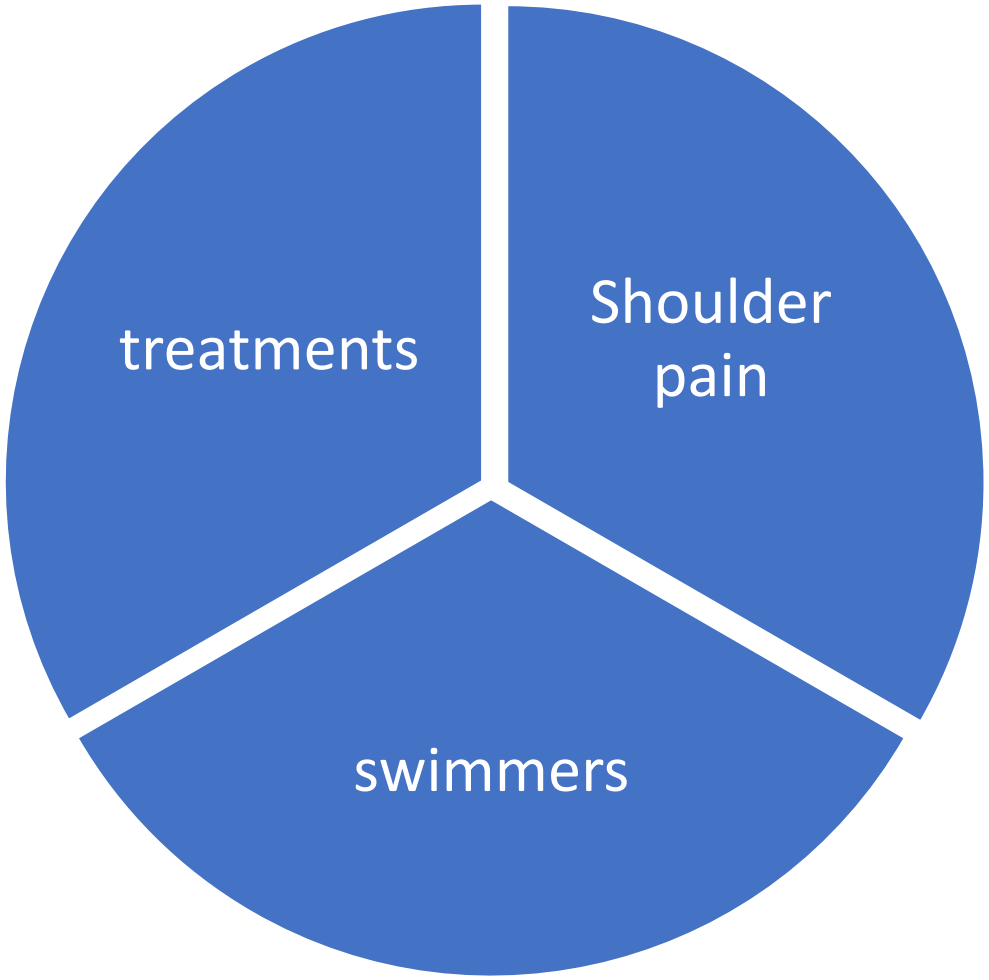
What are the effective treatments for shoulder pain and related musculoskeletal risk factors in competitive swimmers?

What are the effective treatments for shoulder pain and related musculoskeletal risk factors in competitive swimmers?

What are the effective treatments for shoulder pain and related musculoskeletal risk factors in competitive swimmers?



Currency of information
Language
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Common Frameworks

- **PICO** (for quantitative research; often used for determining effectiveness of an intervention)
- **PS** (for qualitative research; focused on patient/ population experiences)
- **PCC** (for identifying meaning for a scoping/ rapid review, identify main concepts, and information your search strategies)

There are many more frameworks for different purposes:
ECLIPSE, SPICE, SPIDER, PFO, PEO

PCC

Population	Important characteristics of participants, including age and other qualifying criteria.
Concept	The core concept examined should be clearly articulated to guide the scope and breadth of the inquiry.
Context	May include...cultural factors e.g. geographic location and/ or specific racial or gender-based interests. Context may also encompass details about the specific setting.

Example	What are the market, non-market, regulatory and compliance incentives or compulsory/ voluntary programs (context) for farmers (population) to adopt environmentally sustainable practices (concept)?

For	Broad topics and commonly used in scoping reviews.

PICO

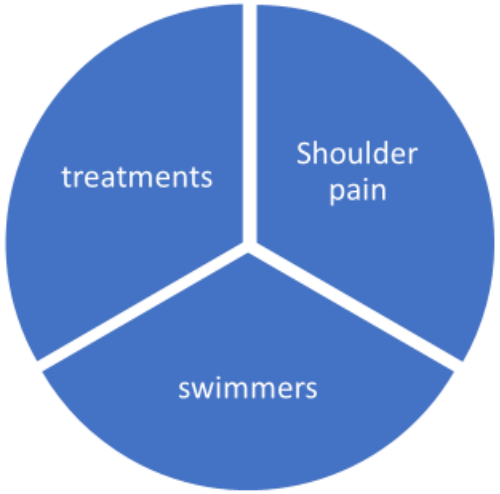
Population, Patient, or Problem	Who are the people being studied or What is the problem being looked at? What are their characteristics?
Intervention	What is the treatment or intervention being studied? (treat, diagnose, observe)
Comparison, Control, or Comparator	What is the intervention compared to? (e.g. Other interventions, standard treatment, no treatment). This can be optional if no comparison applies.
Outcome	What are the relevant outcomes and how are they measured?

Example	Is gabapentin (intervention), compared to placebo (comparison), effective in decreasing pain symptoms (outcome) in middle aged male amputees suffering from phantom limb pain (population)?

For	Clinical questions

Use a PICO framework to describe this research question(s).

What are the effective treatments for shoulder pain and related musculoskeletal risk factors in competitive swimmers?



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Identify Inclusion and Exclusion Criteria

Inclusion & Exclusion Explained

- Inclusion and exclusion criteria are developed after a research question is finalized but before a search is carried out.
- These criteria determine the limits for the evidence synthesis and are typically reported in the methods section of the publication.
- Criteria may also include definitions to justify and adequately describe the criterion for readers.
- Criteria may knowingly or unknowingly introduce bias.
- There is no limit as to the number or types of criteria but ask yourself what works best and am I answering my research question(s).
- Criteria help guide development of your search strategy.

Inclusion/Exclusion Criteria: Types

Inclusion and exclusion criteria explicitly describe the type of research to be analyzed.

Common criteria may include:

- Study design
- Study type
- Publication type
- Population
- Date of publication
- Exposure of intervention / condition
- Language of publication
- Setting or Geography of research / space / place

Common Inclusion/Exclusion Criteria (University of Melborne)
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Inclusion Criteria

Inclusion criteria are the elements of an article that **must be present** in order for it to be eligible for inclusion in a literature review.

For example, included studies must:

have compared certain treatments
be experimental or observational or both
have been published in a certain timeframe (must have compelling reason)
be certain publication type(s)
have recruited a certain population

Exclusion Criteria

Exclusion criteria are the elements of an article that **disqualify the study from inclusion** in a literature review.

For example, excluded studies:

used qualitative methodology
used a certain study design (e.g, observational)
are a certain publication type (e.g., systematic reviews)
were published before a certain year (must have compelling reason)
used animal models
was published in a language other than English

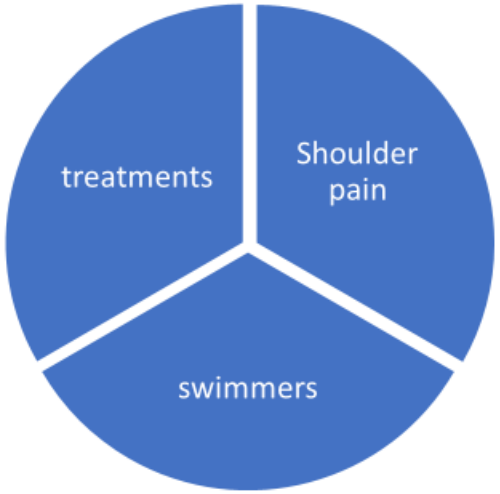
Dying in the hospital setting: A meta-synthesis identifying the elements of end-of-life care that patients and their families describe as being important.

Inclusion criteria	Exclusion criteria
• Peer reviewed articles from 1990 - 2015 • English language • Focus on end-of-life care in the hospital setting • Focus on experience / satisfaction / importance in relation to end-of-life care • Report original patient and/or family data • Raw data provided to illustrate themes • Qualitative methodology • Patient sample have an expected prognosis of 1 year or less	• Focus only on one explicit area of care (not broadly asking about end-of-life care). Examples include advance care planning / communication / site of care preference • No primary patient and/or family data • Little or no focus on end-of-life care in the hospital setting • Conference/Poster abstract • Focus of study does not answer research question • Quantitative methodology • Re-reporting raw data in a synthesised form

Virdun, C., Luckett, T., Lorenz, K., Davidson, P. M., & Phillips, J. (2017). Dying in the hospital setting: A meta-synthesis identifying the elements of end-of-life care that patients and their families describe as being important. *Palliative Medicine*, *31*(7), 587–601. https://doi.org/10.1177/0269216316673547

What might be inclusion and exclusion criteria for this research question(s)?

What are the effective treatments for shoulder pain and related musculoskeletal risk factors in competitive swimmers?



Currency of information
Language
Discipline
Format

Selecting databases and creating search strategies!

Database Strategy

You will need to search **multiple databases** for a comprehensive search.

Databases should be selected with consideration of the disciplinary lens, topics covered, key concepts identified, and types of material indexed.

You might consider noting your target articles, similar evidence synthesis publications, databases relevant to and key concepts in your research question.

The assistance of an academic librarian is often very useful!

Database Strategy: Relevance

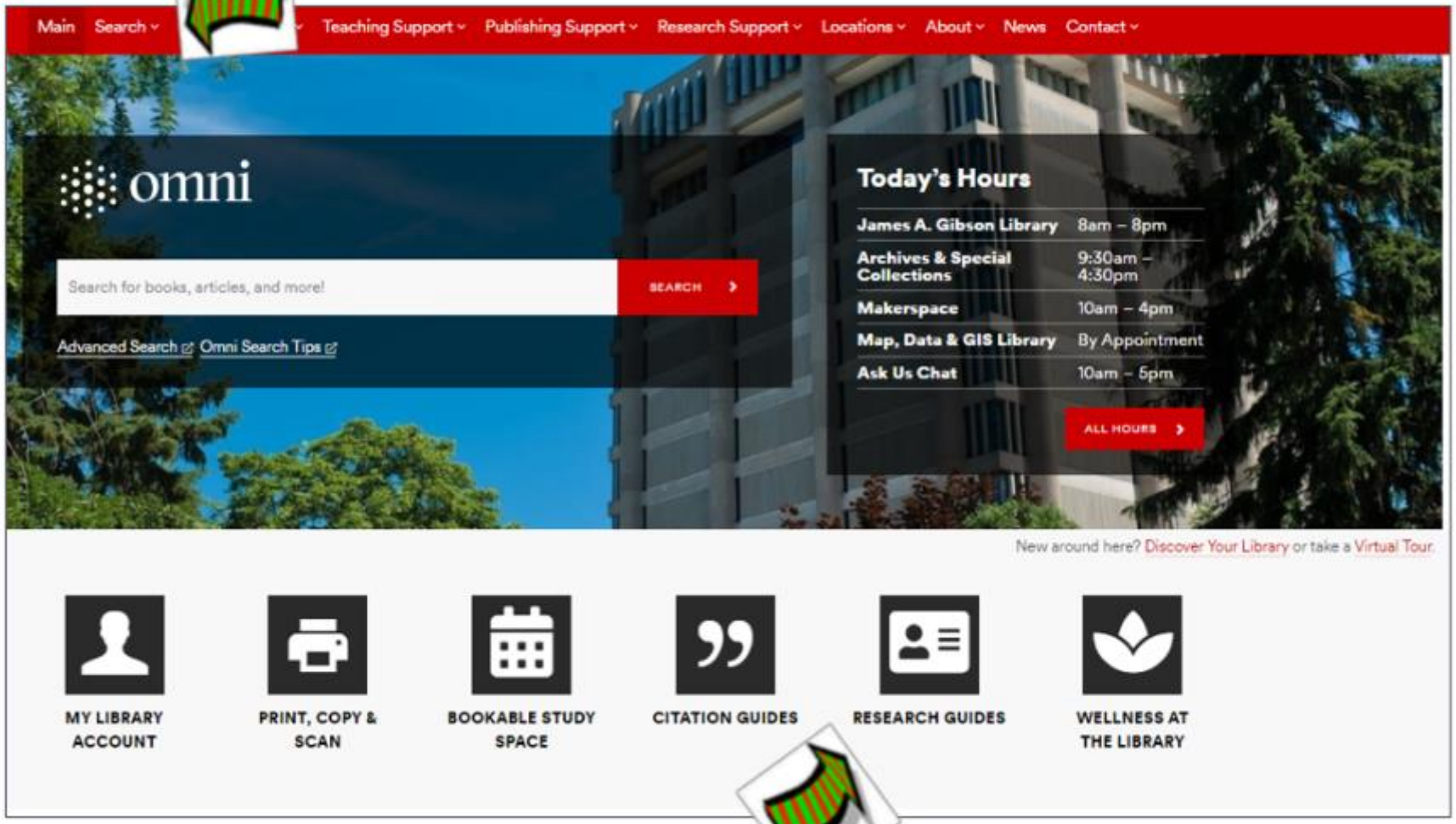
Which databases align with my inclusion and exclusion criteria?

Which databases capture scholarly sources from my key concepts?

Which databases index core journals?

Which databases might an academic librarian recommend?

https://brocku.ca/library/



https://researchguides.library.brocku.ca/az/databases

Find a Database

This is a list of databases the library provides access to. Use this list when:

- You want to continue searching beyond what you can find in Omni
- You want to focus your search to a specific discipline or type of resource
- You are conducting evidence synthesis research (e.g. scoping or systematic review)

Start your search by entering a Database Title, or select a Subject (e.g. Mathematics, Education) or Database Type (e.g. Streaming Video, News)

Database Title / Keyword | Subjects | Types | Search

415 Databases

All A B C D E F G H I J K L M N O P Q R S T U V W X Y Z #

New / Trial Databases

Academic Search Complete, AgeLine, BASE, BioOne Complete, bioRxiv, CINAHL Cochrane, Complete, CORE, Dimensions, Directory of Open Access Journals (DOAJ), Education Source, Elicit, Embase, ERIC, figshare, Gender Studies Database, Google, Advanced Google, Google Books, Google Scholar, Keenious, MEDLINE via PubMed, MEDLINE via OVID, MEDLINE via Web of Science Complete, Omni, Open Alex, ORCiD, OSF Preprints, Oxford Reference, Paperity, Perplexity, PLOS, Politics Collection, ProQuest Sociology Collection, Prospero, PsycINFO, ResearchGate, ResearchRabbit, Scholars Portal E-Journals, SciELO, Scite, Scilit, ~~Scopus~~, Semantic Scholar, Sport Discus, The Lens, Undermind, Web of Science Complete, Web of Science Core Collection, WorldWideScience.org, WorldCat, Zenodo…

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proprietary

https://www.perplexity.ai/

perplexity

How does risky play contribute to children's confidence and self-assessment

Sources

[PDF] Risky Play
bu · 1

Why Risky Play is Important to Your Child's Development
bridgewaycentre · 2

Why Risky Play is Important for Your Child's Development
excelledschools · 3

View 2 more

Answer

Risky play contributes significantly to children's confidence and self-assessment abilities in several key ways:

Building Self-Confidence

When children engage in risky play, they push themselves out of their comfort zones and overcome challenges. This process helps build self-confidence in the following ways:

- Each time children successfully navigate a risky situation, they gain confidence in their abilities [1].
- Overcoming fears and hesitations during risky play boosts children's belief in themselves [2].
- Mastering new skills through risky activities enhances their sense of competence.

As children accumulate these positive experiences, they develop the confidence to say "I can do this!" and are more likely to try new things in the future [2].

Developing Self-Assessment Skills

Risky play provides valuable opportunities for children to assess their own capabilities and limits:

- Through risky play, children learn to evaluate potential risks and make decisions about what they feel comfortable doing [1].
- They gain awareness of their physical abilities and limitations as they test themselves in various situations.

5 sources

How does risky play contribute to children's confidence and self-assessment

1. [PDF] Risky Play
bu
Risky Play Why is Risky Play important? Risky play helps children develop resilience, executive functioning skills, self-confidence, and risk-assessment abilities. Each time they engage in risky play they are engaging in their own science experiment: pushing themselves out of their comfort zone without knowing what the exact outcome will be. Risky play allows children to learn their own limits and find out what they feel comfortable with. This awareness helps reduce the risk of injury as...

2. Why Risky Play is Important to Your Child's Development
bridgewaycentre
"Children are competent, capable of complex thinking, curious, and rich in potential." – Ontario Ministry of Education, How Does Learning Happen? It can be difficult for a lot of us to allow risky play to happen. The instinct of most parents is to eliminate risk in order to protect our children. But risk doesn't have to equal danger. In fact, there are many benefits of risky play! Risky play—that is, play that incorporates safe risks relative to a child's age, size, motor skills, and comfort...

3. Why Risky Play is Important for Your Child's Development
excelledschools
Risky play is a type of play that involves intentionally seeking out or engaging in activities that involve risk or danger. While it may seem counterintuitive, engaging in risky play can actually be beneficial for children's development, as it allows them to explore and test their limits in a controlled and safe environment. 1. Cognitive Development Risky play helps children develop essential cognitive skills, including problem-solving, decision-making, and risk assessment. By engaging in...

4. Risky Play and Children's Well-Being, Involvement and Physical ...
link.springer

5. Risky play for children: Why we should let kids go outside and then get out ...
cbc
When you think back to your favourite childhood play experiences, chances are they took place outdoors, unsupervised and while hanging out with friends. But today's kids spend far less time playing than their parents did. Mariana Brussoni, a professor at the University of British Columbia and BC Children's Hospital — featured in *The Nature of Things* documentary * — has spent years researching the benefits of play that have an element of risk. Risky play for children, she explains, is...

https://elicit.com/

Elicit

Risky Play and Child Confidence

How does “risky play” contribute to children's confidence and self-assessment?

Summary of top 4 papers

Copy

Research suggests that risky play contributes significantly to children's confidence
abilities. Engaging in thrilling and challenging forms of play allows children to dev
skills, increase physical activity, and promote social competencies and resilience (
Even toddlers as young as 17-25 months can assess and manage risks in challeng
environments, developing their own risk management skills (Tangen et al., 2022).
children with a sense of self-confidence and mastery, fulfilling their innate needs
competence, and relatedness (van Rooijen et al., 2023). Furthermore, the biologic
appears to have evolved to help young individuals develop the courage, confiden
abilities needed to face life's challenges (Gray, 2020). However, recent trends of re
freedom to engage in self-directed, risky play have led to negative consequences
and mental health (Gray, 2020).

Sort: Most relevant | Filters | Export as | UPGRADE

Paper

“It Is Scary, but Then I Just Do It Anyway”: Children’s Experiences and Concerns about Risk and Challenge during Loose Parts Play

Martin van Rooijen +4

International Journal of Environmental Research and Public Health

2023 · 0 citations PDF DOI

Children’s use of environmental features affording risky play in early childhood education and care

Patricia Obee +2

Early Child Development and Care

2020 · 20 citations DOI

Research topic

I want to find empirical studies and theoretical papers that examine how risky play contributes to children's confidence and self-assessment.

Share this report | Save to favorites: ☐ | How was this search? Excellent | Good | Ok | Bad

Undermind

Introduction

The concept of risky play is increasingly recognized as a significant factor in children's development, particularly concerning confidence and self-assessment. Risky play encompasses activities that are thrilling and challenging, potentially involving physical injury, such as climbing, jumping from heights, or engaging with dangerous elements. This paper aims to synthesize the existing body of literature on how risky play contributes to the development of children's confidence and self-assessment through empirical studies and theoretical analyses.

A number of empirical studies highlight the direct contributions of risky play to the development of confidence and self-assessment in children. Van Rooijen et al. [1] explored children's experiences with loose parts play, applying self-determination theory to reveal how such activities fulfill children's needs for autonomy and competence. Similarly, Lavrysen et al. [5] conducted an educational intervention to evaluate changes in children's risk competence and perception, demonstrating improvements in confidence through structured risky play activities.

Little and Wyver [2] provided insight into individual differences in risk perception among young children, utilizing both interviews and observational methods. Their work showed how risk appraisal can inform children's play decisions, enhancing their self-assessment capabilities. In another study, Karabon and Steiner [9] examined how children's risk-taking is influenced by ecological factors, such as the play environment and social dynamics, highlighting the contextual elements of confidence development during outdoor play.

The theoretical landscape is enriched by discussions on the evolutionary role of risky play. Sandseter and Kennair [8] articulated the anti-phobic effects of risky play, suggesting it serves developmental functions by helping children manage fears and improve coping skills. This perspective adds depth to the understanding of how risky play contributes beyond immediate behavioral benefits, positing a foundational role in reducing anxiety and building resilience.

Educator and parental perspectives further inform the discourse around risky play. Studies like Spencer et al. [6] explored educators' views on implementing risky play strategies and noted how these perceptions shape the opportunities available to children. Orestes [7] similarly addressed how adult attitudes can affect children's engagement in risky play, underlining the role of adult mediation in promoting confidence and self-assessment.

A systematic review by Brussoni et
the overall positive associations be
benefits, the review called for furth

Overall, the collected studies and t
cultural influences, optimal balance

Topic Match	Cit./Year	Year	Paper	Paper Relevance Summary
100.0%	2.5	2023	**[1] "It Is Scary, but Then I Just Do It Anyway": Children's Experiences and Concerns about Risk and Challenge during Loose Parts Play** Martin van Rooijen, ..., and Mieke Cotterink International Journal of Environmental Research and Public Health 2023 - 2 citations - Show abstract - Cite - PDF	**Shows risky play enhances children's confidence and self-assessment.** Connects risky play experiences to self-determination theory, highlighting autonomy, competence, and relatedness as developmental outcomes. Examines children's perspectives on risky play, focusing on experiences with loose parts and practitioner roles.
99.9%	4.2	2010	**[2] Individual differences in children's risk perception and appraisals in outdoor play environments** H. Little and S. Wyver International Journal of Early Years Education 2010 - 58 citations - Show abstract - Cite	**Examines children's risk perception and appraisal in outdoor play.** Studies four- and five-year-olds' decision-making and awareness of risk during play. Highlights implications for fostering confidence and risk assessment in play environments.

Academic Search Complete, AgeLine, BASE, BioOne Complete, bioRxiv, CINAHL Cochrane, Complete, CORE, Dimensions, Directory of Open Access Journals (DOAJ), Education Source, Elicit, Embase, ERIC, figshare, Gender Studies Database, Google, Advanced Google, Google Books, Google Scholar, Keenious, MEDLINE via PubMed, MEDLINE via OVID, MEDLINE via Web of Science Complete, Omni, Open Alex, ORCiD, OSF Preprints, Oxford Reference, Paperity, Perplexity, PLOS, Politics Collection, ProQuest Sociology Collection, Prospero, PsycINFO, ResearchGate, ResearchRabbit, Scholars Portal E-Journals, SciELO, Scite, Scilit, ~~Scopus~~, Semantic Scholar, Sport Discus, The Lens, Undermind, Web of Science Complete, Web of Science Core Collection, WorldWideScience.org, WorldCat, Zenodo…

Google, Advanced Google, Google Scholar…
MEDLINE, Embase, CINAHL, Web of Science Core Collection, ~~Scopus~~… (big 5)
Consider disciplinary databases e.g. psycINFO, ProQuest Sociology, Education Source…

Web of Science Complete (includes BIOSIS, MEDLINE, WofS Core Collection…) & Sport Discus

https://www.google.ca/advanced_search

Google

Advanced Search

Find pages with...

all these words:	shoulder*
this exact word or phrase:	
any of these words:	injur* therap*
none of these words:	
numbers ranging from:	to

Then narrow your results by...

language:	any language
region:	any region
last update:	anytime
site or domain:	
terms appearing:	in the title of the page
file type:	Adobe Acrobat PDF (.pdf)
usage rights:	not filtered by license

Advanced Search

allintext: shoulder* injur* OR therap* filetype:pdf

All Images Videos Shopping News Maps Web More

BJSM
https://bjsm.bmj.com › content › bjsports › 408.full.pdf

Diagnosis, prevention and treatment of common shoulder ...

by B Liaghat · 2023 · Cited by 27 — ABSTRACT. This statement paper summarises and appraises the evidence on diagnosis, prevention, and treatment of **common shoulder injurie**...

improvemyagility.com
https://improvemyagility.com › uploads › 2021/04 PDF

What is Causing Your Shoulder Pain? - Agility Physical Therapy

The **shoulder** joint acts like a ball in a very shallow socket that is part of the **shoulder** blade. Some of the most important muscles in the rotator cuff are ...

Elliott Physical Therapy
https://elliottphysicaltherapy.com › 2023/08 › Elli... PDF

SHOULDER, ELBOW AND WRIST PAIN

Whether your pain results from an injury or repetitive stress, it's often the result of underlying trauma or inflammation of the tendons,.

ontario.ca
https://www.ontario.ca › files › moh-qbp-clinical... PDF

Clinical Handbook for Degenerative Disorders of the ...

Health Quality Ontario and Ministry of Health and Long-Term Care. Quality-based procedures: **clinical handbook for degenerative disorders of the shoulder**.

Mining/harvesting terms from target articles

- Target articles are those critical to your review topic
  - They will include highly relevant keywords and subject headings
- Steps:
  1. Search for each target article in a subject database:
     - Relevant for your topic
     - Provides subject headings
  2. Mine/analyze the database record for each article
     - Retrieve relevant subject headings and/or keywords.
       - Click on the title of the article to access the record
  3. Add relevant keywords and subject headings to your seed paper chart

Your librarian can suggest the best fit

Create search strings

1. Find additional subject headings for each search concept using database thesaurus
2. Brainstorm/look up additional keywords for each of your concepts
   - Use subject heading scope notes/"used for" terms to derive additional keywords
   - AI tools such as ChatGPT, Perplexity etc. can help generate keywords and synonyms
3. Build search strings using operators to combine keywords and subject headings

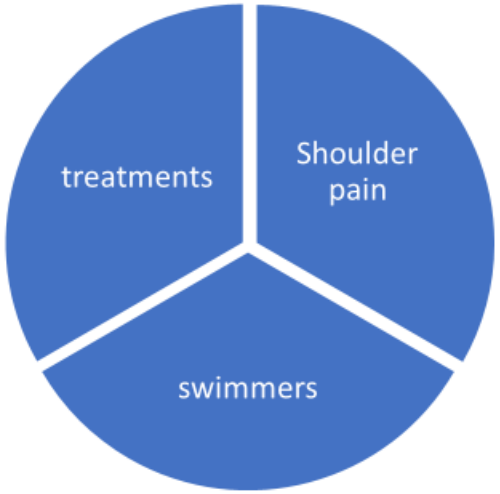
Sample Education Source search history

#	Query	Results
S11	S3 AND S7 AND S10	583
S10	S8 OR S9	2,542,577
S9	DE "Universities and colleges" OR DE "Higher education" OR DE "Postsecondary education"	154,010
S8	Universit* OR College* OR (Post N3 secondary) OR (Higher N3 education)	2,542,576
S7	S4 OR S5 OR S6	907
S6	DE "plagiarism prevention" AND DE "computer software"	24
S5	Turnitin OR iThenticate	278
S4	(Software OR computer OR online OR Internet OR program) N3 (plagiarism OR cheating OR "text match*")	734
S3	S1 OR S2	1,429,869
S2	DE "Students"	98,310
S1	Student* OR learner*	1,429,869

- Search keywords and subject headings for each concept separately then combine those search lines with the OR operator
- Combine the final search sets for each concept with the AND operator

What might be effective search strategies for Web of Science Complete and Sport Discuss searches?

What are the effective treatments for shoulder pain and related musculoskeletal risk factors in competitive swimmers?



Currency of information
Language
Discipline
Format

MeSH terms

- Exercise Therapy* / methods
- Humans
- Risk Factors
- Scapula
- Shoulder / physiology
- Shoulder Pain* / etiology
- Shoulder Pain* / therapy
- Swimming / physiology

https://www.ncbi.nlm.nih.gov/mesh

Full

Send to:

Shoulder Pain

Unilateral or bilateral pain of the shoulder. It is often caused by physical activities such as work or sports participation, but may also be pathologic in origin.

Year introduced: 1999

PubMed search builder options

Subheadings:

- blood
- cerebrospinal fluid
- chemically induced
- classification
- complications
- congenital
- diagnosis
- diagnostic imaging
- diet therapy
- drug therapy
- economics
- embryology
- enzymology
- epidemiology
- ethnology
- etiology
- genetics
- history
- immunology
- metabolism
- microbiology
- mortality
- nursing
- parasitology
- pathology
- physiopathology
- prevention and control
- psychology
- radiotherapy
- rehabilitation
- surgery
- therapy
- urine
- veterinary
- virology

Restrict to MeSH Major Topic.

Do not include MeSH terms found below this term in the MeSH hierarchy.

Tree Number(s): C05.550.091.700, C23.888.592.612.094.700, F02.830.816.444.350.500, G11.561.790.444.350.500

MeSH Unique ID: D020069

Entry Terms:

- Pain, Shoulder
- Pains, Shoulder
- Shoulder Pains

PubMed Search Builder

Add to search builder AND

Search PubMed

YouTube Tutorial

Related information

PubMed

PubMed - Major Topic

Clinical Queries

NLM MeSH Browser

MedGen

Recent Activity

Turn Off Clear

shoulder pain (1) MeSH

Shoulder Pain MeSH

Bullying MeSH

bullying (3) MeSH

Previous Indexing:

- Pain (1966-1998)

All MeSH Categories
Diseases Category
Musculoskeletal Diseases
Joint Diseases
Arthralgia
Shoulder Pain

All MeSH Categories
Diseases Category
Pathological Conditions, Signs and Symptoms
Signs and Symptoms
Neurologic Manifestations
Pain
Arthralgia
Shoulder Pain

All MeSH Categories
Psychiatry and Psychology Category
Psychological Phenomena
Psychophysiology
Sensation
Pain
Arthralgia
Shoulder Pain

All MeSH Categories
Phenomena and Processes Category
Musculoskeletal and Neural Physiological Phenomena
Nervous System Physiological Phenomena
Sensation
Pain
Arthralgia
Shoulder Pain

Swimming

An activity in which the body is propelled through water by specific movement of the arms and/or the legs. Swimming as propulsion through water by the movement of limbs, tail, or fins of animals is often studied as a form of PHYSICAL EXERTION or endurance.

PubMed search builder options

Subheadings:

- ☐ classification
- ☐ economics
- ☐ education
- ☐ ethics
- ☐ history
- ☐ injuries
- ☐ legislation and jurisprudence
- ☐ physiology
- ☐ psychology
- ☐ standards
- ☐ statistics and numerical data
- ☐ trends

☐ Restrict to MeSH Major Topic.

☐ Do not include MeSH terms found below this term in the MeSH hierarchy.

Tree Number(s): G11.427.410.568.800, G11.427.410.698.277.875, I03.350.875, I03.450.642.845.945.500

MeSH Unique ID: D013550

- All MeSH Categories
  - Phenomena and Processes Category
    - Musculoskeletal and Neural Physiological Phenomena
      - Musculoskeletal Physiological Phenomena
        - Movement
          - Locomotion
            - **Swimming**

- All MeSH Categories
  - Phenomena and Processes Category
    - Musculoskeletal and Neural Physiological Phenomena
      - Musculoskeletal Physiological Phenomena
        - Movement
          - Motor Activity
            - Exercise
              - **Swimming**

Age Groups

Persons classified by age from birth (INFANT, NEWBORN) to octogenarians and older (AGED, 80 AND OVER).
Year introduced: 1998

PubMed search builder options

- [ ] Restrict to MeSH Major Topic.
- [ ] Do not include MeSH terms found below this term in the MeSH hierarchy.

Tree Number(s): M01.060
MeSH Unique ID: D009273
Entry Terms:

- Age Group
- Group, Age

Previous Indexing:

- specific age group (1966-1997)

All MeSH Categories
Persons Category
Persons
Age Groups
Adolescent
Adult
Aged +
Middle Aged
Young Adult
Birth Cohort
Child
Child, Preschool
Infant
Infant, Newborn +

Exercise Therapy

A regimen or plan of physical activities designed and prescribed for specific therapeutic goals. Its purpose is to restore normal musculoskeletal function or to reduce pain caused by diseases or injuries.

PubMed search builder options

Subheadings:

- [ ] adverse effects
- [ ] classification
- [ ] economics
- [ ] education
- [ ] ethics
- [ ] history
- [ ] instrumentation
- [ ] legislation and jurisprudence
- [ ] methods
- [ ] mortality
- [ ] nursing
- [ ] psychology
- [ ] standards
- [ ] statistics and numerical data
- [ ] trends
- [ ] veterinary

- [ ] Restrict to MeSH Major Topic.
- [ ] Do not include MeSH terms found below this term in the MeSH hierarchy.

Tree Number(s): E02.760.169.063.500.387, E02.779.483, E02.831.535.483
MeSH Unique ID: D005081
Entry Terms:

- Rehabilitation Exercise
- Exercise, Rehabilitation
- Exercises, Rehabilitation
- Rehabilitation Exercises
- Therapy, Exercise
- Exercise Therapies
- Therapies, Exercise
- Remedial Exercise
- Exercise, Remedial
- Exercises, Remedial
- Remedial Exercises

See Also:

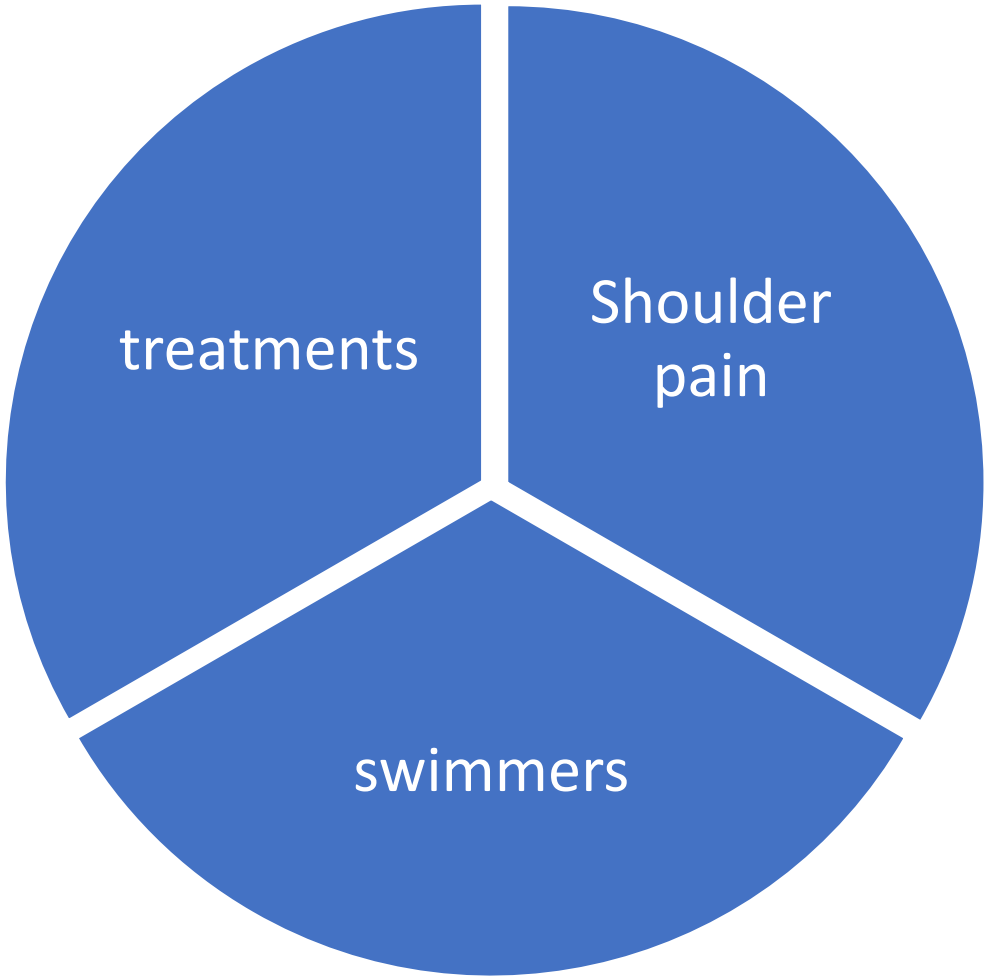
- Sports
- Exercise
- Exercise Movement Techniques

All MeSH Categories
Analytical, Diagnostic and Therapeutic Techniques and Equipment Category
Therapeutics
Patient Care
Continuity of Patient Care
Aftercare
Rehabilitation
Exercise Therapy
Blood Flow Restriction Therapy
Endurance Training
Motion Therapy, Continuous Passive
Muscle Stretching Exercises
Plyometric Exercise
Resistance Training

All MeSH Categories
Analytical, Diagnostic and Therapeutic Techniques and Equipment Category
Therapeutics
Physical Therapy Modalities
Exercise Therapy
Blood Flow Restriction Therapy
Endurance Training
Motion Therapy, Continuous Passive
Muscle Stretching Exercises
Plyometric Exercise
Resistance Training

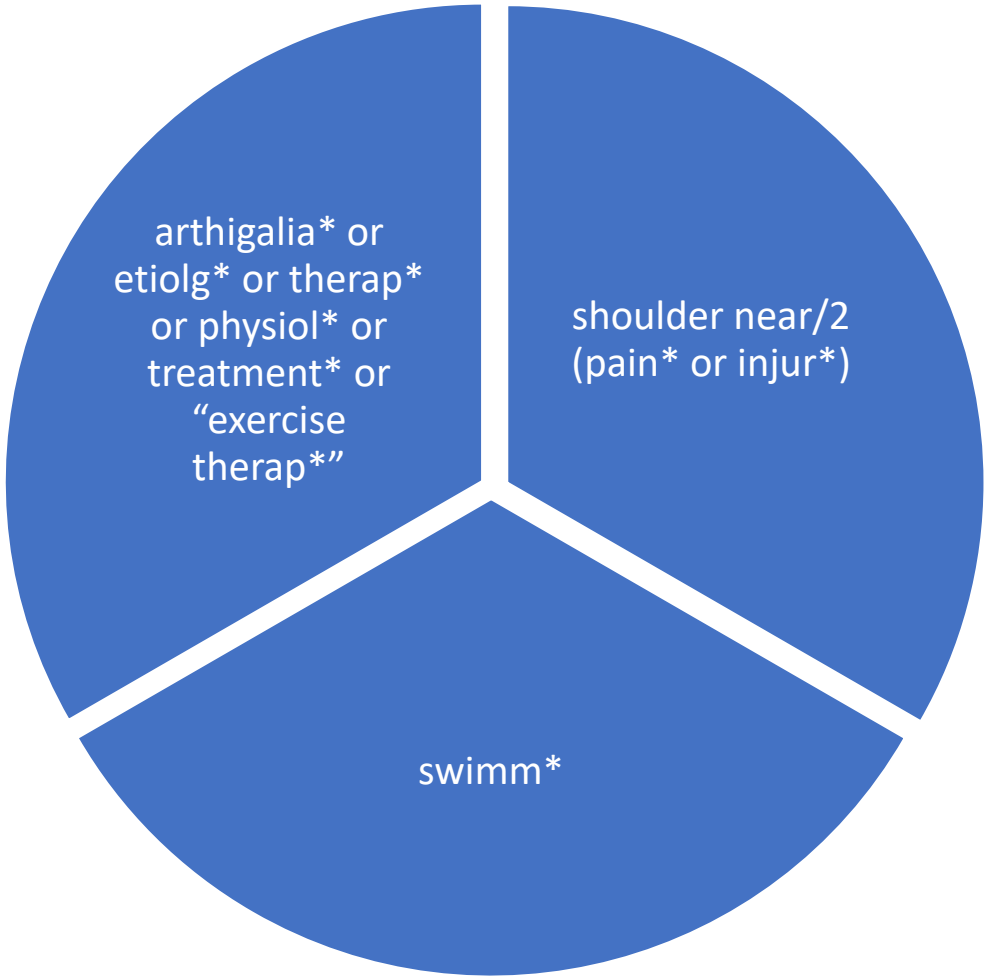
All MeSH Categories
Analytical, Diagnostic and Therapeutic Techniques and Equipment Category
Therapeutics
Rehabilitation
Physical Therapy Modalities
Exercise Therapy
Blood Flow Restriction Therapy
Endurance Training
Motion Therapy, Continuous Passive
Muscle Stretching Exercises
Plyometric Exercise
Resistance Training

What are the effective treatments for shoulder pain and related musculoskeletal risk factors in competitive swimmers?



Currency of information
Language
Discipline
Format

What are the effective treatments for shoulder pain and related musculoskeletal risk factors in competitive swimmers?



Currency of information: 2000+
Language: English
Discipline: Health
Format: scholarly articles

https://www.wordhippo.com/

What is another word for shoulder?

*Need **synonyms for shoulder**? Here's a list of **similar words** from our **thesaurus** that you can use instead.*

Contexts ▼

Noun

The part of the body between the base of the neck and forearm socket

An act of pushing someone or something in order to move them away from oneself

The sloping side of a mountain

... more ▼

Noun

The part of the body between the base of the neck and forearm socket

deltoid | collarbone | trapezius | acromion | clavicle | humerus | infraspinatus | scapula | shoulder blade | upper arm | upper arm bone | rhomboid minor

*"Perhaps a person regains control of his hand and forearm but is not able to rotate his **shoulder** sufficiently to shave."*

https://www.wordhippo.com/

What is another word for therapy?

*Need **synonyms for therapy**? Here's a list of **similar words** from our **thesaurus** that you can use instead.*

Contexts ▼

Treatment intended to relieve or heal a disorder

The treatment of mental or psychological disorders by psychological means

The act of providing someone in need of assistance with aid

An attitude or opinion, especially a habitual one

... more ▼

Noun

Treatment intended to relieve or heal a disorder

treatment | remedy | therapeutics | cure | antidote | medicine

curative | therapeutic | healing | help | rehabilitation

remedial treatment | healing treatment | method of healing | medication

care | doctoring | hospitalization[US] | hospitalisation[UK] | nostrum

ministrations | surgery | medicament | nursing | prescription

corrective | regimen | drug | operation | physic | more ›

DOCUMENTS | RESEARCHERS

Search in: **All Databases** Collections: **All**

DOCUMENTS | CITED REFERENCES

Topic

Example: oil spill* mediterranean

shoulder near/2 (pain* or injur*)

And | Topic

Example: oil spill* mediterranean

rehabil* or therap* or treatment* or physiolog* or etiolog* or "exercise therapy"

And | Topic

Example: oil spill* mediterranean

swimm*

+ Add row | + Add date range | Advanced search

× Clear | Search

204 results from All Databases for:

shoulder near/2 (pain* or injur*) (Topic) and **rehabil* or therap* or treatment* or physiolog* or etiolog* or "exercise therapy"** (Topic) and s...

Copy query link

+ Add Keywords Quick add keywords: + swimmer s shoulder + elite swimmers + shoulder injury + swimming + scapular dyskinesis + shoulder injuries

Refined By: NOT Database: Preprint Citation Index ✕

Publication Years: 2024 or 2023 or 2022 or 2021 or 2020 or 2019 or 2018 or 2017 or 2016 or 2015 or 2014 or 2013 or 2012 or 2011 or 201 ... or 2008 or 2007 or 2006 or 2005 or 2004 or 2003 or 2002 or 200... ✕

Document Types: Article ✕ Languages: English ✕ Clear all

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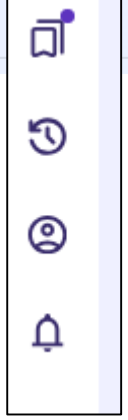

50/204 Add To Marked List Export Sort by: Date: newes

1 Conservative Treatment of an Isolated Greater Tuberosity Fracture With Dislocation: Management of Post-Traumatic Subacromial Impingement Syndrome and a Mini-Review of the Literature

Afacan, MY and Davulcu, CD

Aug 20 2024 | CUREUS JOURNAL OF MEDICAL SCIENCE 16 (8)

This case report evaluates the effectiveness of conservative treatment for an isolated greater tuberosity fracture-dislocation, detailing the treatment process and addressing post-traumatic subacromial impingement syndrome with a mini-review of the literature. A 26-year-old male fell from a height, resulting in a self-reduced dislocated shoulder. Examir ... Show more

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2 Glenohumeral internal rotation deficit in overhead throwing athletes: Evidence and perspectives of osteopathic manipulative treatment

Senigagliesi, F; Scialla, S; (...); Marasco, ML

Oct 2024 | JOURNAL OF BODYWORK AND MOVEMENT THERAPIES 40 , pp.1520-1526

The shoulder is one of the most commonly injured joints among overhead athletes playing volleyball, tennis, swimming, baseball or softball. A potential mechanism contributing to shoulder injuries in overhead throwing athletes involves limitations in the range of motion (ROM) of the glenohumeral (GH) joint. Glenohumeral internal rotation deficit (GIRD) is ... Show more

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- MEDLINE® 18
- BIOSIS Citation Index 3
- Web of Science Core Collection 183

Quick Filters

- Highly Cited Papers 1
- Review Article 34
- Open Access 85

50/204 Remove Export

1 Conservative T… Tube… Management … …mping… Review of the …

Afacan, MY and Davu…

Aug 20 2024 | CUREU… …(8)

This case report eval… …nt for a… detailing the treatme… …cromial… literature. A 26-year- …duced d…

Find it @ Brock Fr…

- EndNote online
- EndNote desktop
- Plain text file
- RIS (other reference software)
- Excel
- Tab delimited file
- Printable HTML file
- Email
- Fast 5000
- More Export Options

Export Records to RIS File

Record Options

- You have selected 50 results for export
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- Records from: 1 to 204

No more than 1000 records at a time

Record Content:

Author, Title, Source, Abstract

Export Cancel

WofS - Zotero

File Edit View Tools Help

All Fields & Tags

- target articles
- WorldCat stuff
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- Kendra
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  - Covidence testing
  - Epistemonikos database
  - OSF
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  - theses Nov 2023
- Kieva
  - reviews
  - theses dissertations
- KINE 1P93
- KINE 2P91
- KINE 4P70
- KINE 4P82
  - WofS
- KINE 4P84 asthma
- kiss
- Krista
- Lauren
  - seed papers
- Logan
- Math article
- Mia

No tags to display

Title	Creator
A 4-year-old boy with post-traumatic winging of the scapula	Sridhar et al.
A Cross-Sectional Study Examining Shoulder Pain and Disability in Divi...	Harrington et al.
A relation between static flexibility and shoulder pain in competitive ag...	Ozcaldiran
A systematic review on posterior circumflex humeral artery pathology: ...	Kraan et al.
Acute effect of scapular mobilization with associated myofascial releas...	Martins et al.
Acute Effects of Posture Shirts on Rounded-Shoulder and Forward-Hea...	Manor et al.
Adolescent butterfly swimmer with bilateral subluxing sternoclavicular ...	Echlin and Michaelson
Age-Related, Sport-Specific Adaptions of the Shoulder Girdle in Elite A...	Cools et al.
Altered Functional and Structural Measures in Masters Swimmers With ...	Thomas et al.
Ambulatory joint mobility and muscle strength assessment during reha...	Tranquilli et al.
An adaptive integral terminal sliding mode controller to track the hum...	Haghpanah et al.
Analysis neuromuscular activity during front crawl with and without a s...	Castillo-Lozano and Cuesta-Va...
Arthroscopic capsular plication in the treatment of shoulder pain in co...	Montgomery et al.
Association Between Years of Competition and Shoulder Function in C...	Dischler et al.
Autologous tenocyte implantation into shoulder tendon pathology in a...	Schwab et al.
Biceps Tenodesis for Type II SLAP Tears.	Tayrose et al.
Biomechanical Considerations in the Competitive Swimmer's Shoulder.	Heinlein and Cosgarea
Body roll differences in freestyle swimming between swimmers with an...	Vila Dieguez and Barden
Can scapular and humeral head position predict shoulder pain in adole...	McKenna et al.
Care of Shoulder Pain in the Overhead Athlete	Chorley et al.
Care of Water Polo Players	Stromberg
Changes in clinical measures and tissue adaptations in collegiate swim...	Tate et al.
Changes in shoulder girdle strength in 3 consecutive years in elite adol...	Habechian et al.
Characteristics and etiology of exercise-related transient abdominal pain	Morton and Callister
Characteristics of Operative Shoulder Injuries in the National Collegiate...	Gil et al.
Clinical and Ultrasonographic Evaluations of the Shoulders of Elite Swi...	Rodeo et al.
Clinical and ultrasound findings of 'swimmer's shoulder' and its associ...	Moeda et al.
Clinical Assessment of Scapula Motion: Scapula Upward Rotation and ...	Brown et al.
Clinical evaluation of static scapular posture in overhead athletes with ...	Papandreou et al.
Clinical Evaluation Techniques for Injury Risk Assessment in Elite Swim...	Schlueter et al.
Comparing sports injuries in men and women	Sallis et al.
Comparison of Muscle Coordination During Front Crawl and Backstrok...	Matsuura et al.
Comparison of Upper Extremity Physical Characteristics Between Adole...	Hibberd et al.
Competing with injuries: injuries prior to and during the 15th FINA Wor...	Mountjoy et al.
Competitive swimmers with hypermobility have strength and fatigue d...	Liaghat et al.
Competitive swimming illness and injury: common conditions limiting...	Johnson

Info | Notes | Tags | Related

Item Type	Journal Article
Title	Clinical and Ultrasonographic Evaluations of t Shoulders of Elite Swimmers
Author	Rodeo, Scott A.
Author	Nguyen, Joseph T.
Author	Cavanaugh, John T.
Author	Patel, Yashika
Author	Adler, Ronald S.
(...) Abstract	Background: Shoulder pain is a common prob
Publication	AMERICAN JOURNAL OF SPORTS MEDICINE
Volume	44
Issue	12
Pages	3214-3221
Date	2016 DEC
Series	
Series Title	
Series Text	
Journal Abbr	
Language	
DOI	10.1177/0363546516657823
ISSN	0363-5465
Short Title	
URL	
Accessed	1/4/2017
Archive	
Loc. in Archive	WOS:000389905400025
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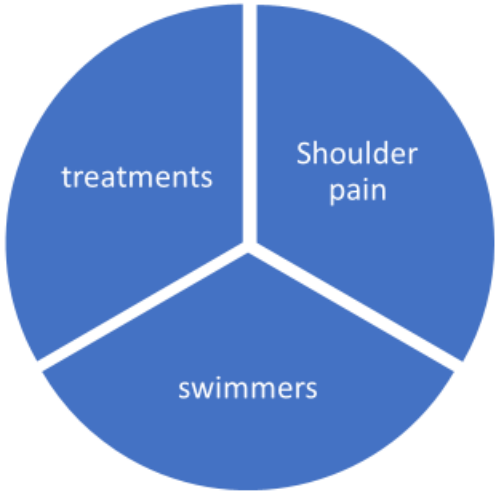
Date Added	9/25/2024, 1:10:44 PM
Modified	9/25/2024, 1:10:44 PM

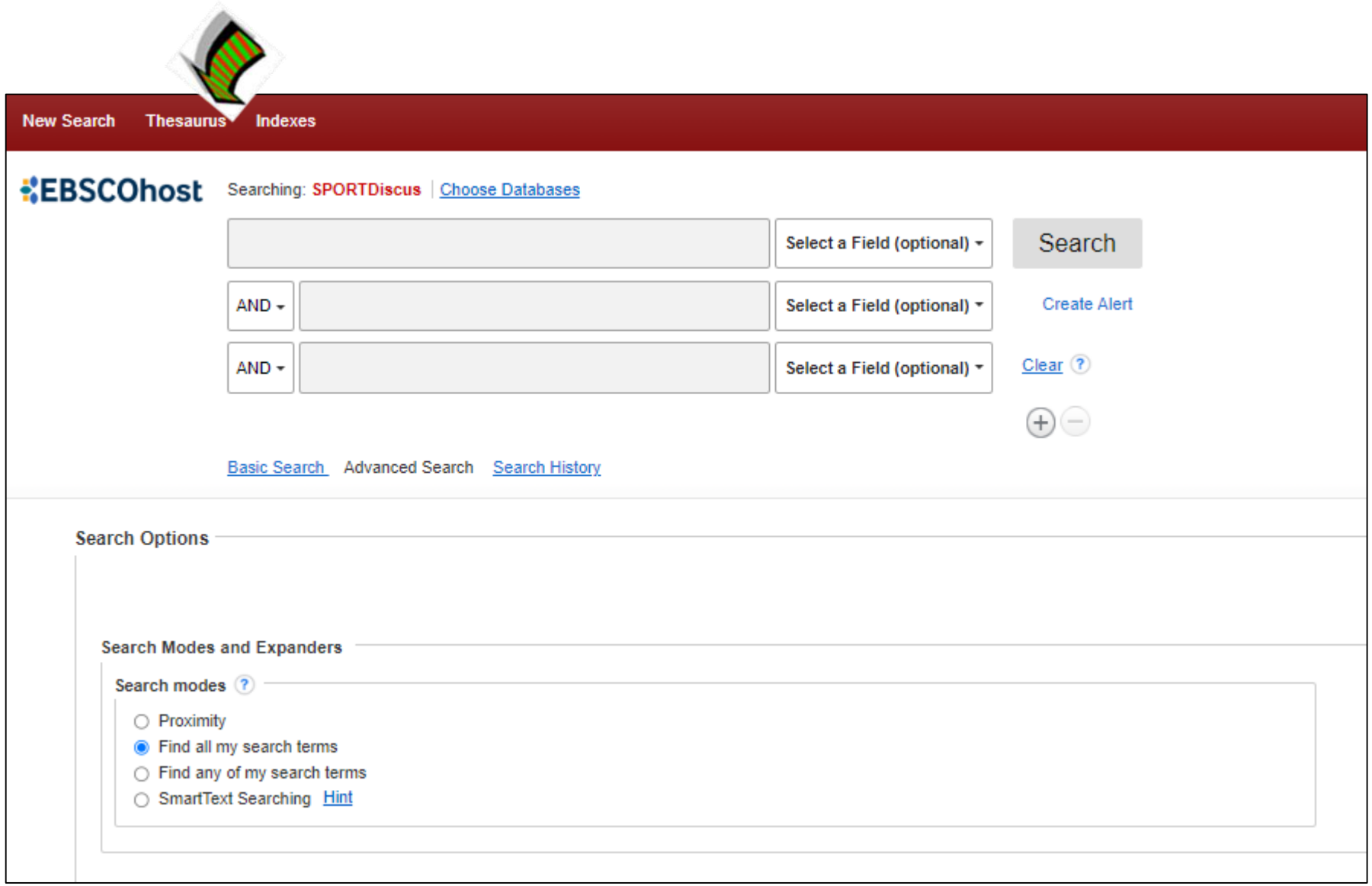
What might be effective search strategies for Web of Science Complete and Sport Discuss searches?

What are the effective treatments for shoulder pain and related musculoskeletal risk factors in competitive swimmers?



Currency of information
Language
Discipline
Format

https://researchguides.library.brocku.ca/database-sport-discus



Browsing: Sports Thesaurus

shoulder [Browse]

Term Begins With | Term Contains | Relevancy Ranked

Page: Previous Next

Select term, then add to search using: OR [Add]

(Click term to display details.)

- SHOULDER
- SHOULDER -- Pain **Use** SHOULDER pain
- SHOULDER -- Physiology **Use** SHOULDER physiology
- SHOULDER -- Wounds & injuries **Use** SHOULDER injuries
- SHOULDER belts, Automobile **Use** AUTOMOBILE seat belts
- SHOULDER blade **Use** SCAPULA
- SHOULDER endoprostheses **Use** TOTAL shoulder replacement
- SHOULDER exercises
- SHOULDER girdle
- SHOULDER injuries
- SHOULDER joint
- SHOULDER joint -- Rotator cuff **Use** ROTATOR cuff
- SHOULDER joint -- Wounds & injuries **Use** SHOULDER joint injuries
- SHOULDER joint injuries
- SHOULDER joints **Use** SHOULDER
- SHOULDER joints, Artificial **Use** TOTAL shoulder replacement
- SHOULDER pain
- SHOULDER physiology
- SHOULDER prostheses **Use** TOTAL shoulder replacement
- SHOULDER replacement, Total **Use** TOTAL shoulder replacement

age groups [Browse]

Term Begins With | Term Contains | Relevancy Ranked

Back to List

Previous Next

Select term, then add to search using: OR [Add]

OLDER people

Scope Note	Here are entered works on the conditions of the aged in general
Narrower Terms	EXERCISE for older people
	PHYSICAL education for older people
	PHYSICAL fitness for older people
	SPORTS for older people
Related Terms	AGING
	GERIATRICS
	RETIREMENT
Used for	AGED
	AGING people
	AGING persons
	ELDERLY
	ELDERLY people
	ELDERLY persons
	LATE adulthood
	OLD people
	OLDER adults
	OLDER persons
	SENIOR citizens
	SENIORS (Older people)
	SENIORS (Older persons)

EBSCOhost Searching: SPORTDiscus | Choose Databases

shoulder n2 ((pain* or injur*) — Select a Field (optional) — Search

AND — rehabil* or therap* or treatment* or physiolo — Select a Field (optional) — Create Alert

AND — swimm* — Select a Field (optional) — Clear

Search Results: 1 - 50 of 117 — Relevance — Page Options — Share

1. The Effect of Exercise **Therapy** Interventions on **Shoulder Pain** and Musculoskeletal Risk Factors for **Shoulder Pain** in Competitive Swimmers: A Scoping Review.

By: Yoma, Matias; Herrington, Lee; Mackenzie, Tanya A. Journal of Sport **Rehabilitation**. Jul2022, Vol. 31 Issue 5, p617-628. DOI: 10.1123/jsr.2021-0403.

Find Full Text

Academic Journal

2. Effects of A Progressive **Rehabilitation** Program on **Shoulder** Internal Rotation Range of Motion, Acromiohumeral Distance, And **Pain** in An Adolescent Female Swimmer with Subacromial **Pain** (Impingement) Syndrome.

By: YEŞİLYAPRAK, Sevgi Sevi; TÜRKSAN, Halime Ezgi; KARABAY, Damla. International Journal of Disabilities Sports & Health Sciences. Jun2022, Vol. 5 Issue 1, p56-65. DOI: 10.33438/ijdshs.1041097.

Find Full Text

Academic Journal

Sign In — Folder — Preferences

Current Search

Find all my search terms:

(shoulder n2 ((pain* or injur*)) AND (rehabil* or therap* or t...

Expanders

Apply equivalent subjects

Limiters

Publication Date: 20000101-20241231

Peer Reviewed

Language

english

Limit To

- [x] Peer Reviewed
- [ ] Image Quick View
- [ ] References Available

From: 2000 Publication Date To: 2024

Show More

Options set

Source Types

- [x] All Results
- [ ] Academic Journals (117)

Subject

Publisher

Publication

Articles

1-50 of 117

Page: 1 2 3

Select / deselect all | Delete Items

1. A Chiropractic Case Report in the Treatment and Rehabilitation of Swimmer's Shoulder.

Academic Journal

By: Kurtz, James T. Journal of Chiropractic. Oct 2004: Vol. 41 Issue 10. p. 32-38-38. , Database: SPORTDiscus

PDF Full Text

2. A Cross-Sectional Study Examining Shoulder Pain and Disability in Division I Female Swimmers.

Academic Journal

By: Harrington, Shana; Meisel, Corinne; Tate, Angela. Journal of Sport Rehabilitation. Feb2014, Vol. 23 Issue 1, p65-75, DOI: 10.1123/JSR.2012-0123 , Database: SPORTDiscus

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Save E-mail

Number of items to be saved: 117

Remove these items from folder after saving

Save

Save citations to a file formatted for:

- Direct Export in RIS Format (e.g. CITAVI, EasyBib, EndNote, ProCite, Reference Manager, Zotero)
- Direct Export to EndNote Web
- Generic bibliographic management software
- Citations in XML format
- Citations in BibTeX format
- Citations in MARC21 format
- Direct Export to RefWorks
- Direct Export to EasyBib
- Download CSV
- Direct Export to NoodleTools

- KINE 2P91
- KINE 4P70
- KINE 4P82
  - Sportdiscuss
  - WofS
- KINE 4P84 asthma
- kiss
- Krista

- reviews
- theses dissertations
- KINE 1P93
- KINE 2P91
- KINE 4P70
- KINE 4P82
  - Sportdiscuss
  - WofS
- KINE 4P84 asthma
- kiss
- Krista
- Lauren
  - seed papers
- Logan
- Math article

Biceps Tenodesis for Type II SLAP Tears.	Tayrose et al.
Biomechanical Considerations in the Competitive Swimmer's Shoulder.	Heinlein and Cosgarea
Care of Water Polo Players.	Stromberg
CERVICAL CONTRIBUTION TO FUNCTIONAL SHOULDER IMPINGEMEN...	Pheasant
Clinical and Ultrasonographic Evaluations of the Shoulders of Elite Swi...	Rodeo et al.
Clinical Measures of Shoulder Mobility in College Water-Polo Players.	Witwer and Sauers
COMPARISON OF GLENOHUMERAL JOINT ROTATION RANGE OF MOTI...	Ribeiro Pereira et al.
Comparison of Muscle Coordination During Front Crawl and Backstrok...	Matsuura et al.
Competitive swimmers with hypermobility have strength and fatigue d...	Liaghat et al.
Concurrent validity of handheld dynamometer measurements for scap...	Liberatori Junior et al.
Critical factors for the prevention of low back pain in elite junior divers.	Narita et al.
Critical scapula motions for preventing subacromial impingement in fu...	Du and Yanai
Descriptive Epidemiology of High School Swimming and Diving Injuries.	Belilos et al.
Development and Validation of a Swimmer's Functional Pain Scale.	Drake et al.

119 items in this view

Sample Search Strategy description (remember to save search strategies)

CINAHL Complete via EBSCOhost

Autistic Disorder
Asperger Syndrome
Pervasive Developmental Disorder-Not Otherwise Specified
Child Developmental Disorders, Pervasive

(Exp Autistic Disorder or Asperger Syndrome or Pervasive Developmental Disorder-Not Otherwise Specified or Child Developmental Disorders, Pervasive) (MH) or autis* or ASD or spectrum n2 disorder* or Asperger* or "pervasive developmental disorder*" or PDD-NOS* or PDDNOS* or "PDD NOS*"

"early intensive behaviour intervention" or "early intensive behavior intervention*" or "pivotal response treatment*" or "naturalistic developmental behavioural intervention*" or "naturalistic developmental behavioral intervention*" or "early start Denver model*" or "developmental individual relationship-based intervention*" or floortime* or "relationship development intervention*" or EIBI or DTT or PRT or ESDM or RDI or DIR

Limit to 1987+, academic journals, English, all child.
Child between birth and adolescence
Exp Child

189 March 7, 2024
190 April 2, 2024

Critical Care Nurses' Coping Skills 2023 Ovid MEDLINE search strategy

Database(s): **Ovid MEDLINE(R) ALL** 1946 to June 28, 2023
Search Strategy:

#	Searches	Results
1	stress, psychological/ or burnout, psychological/ or caregiver burden/ or occupational stress/ or stress disorders, traumatic/ or stress disorders, post-traumatic/ or stress disorders, traumatic, acute/ or exp anxiety/ or depression/ or exp fatigue/	404792
2	(stress* or pressure* or burnout or distress* or anxiet* or fatigue* or depression or disregulat* or hyperarous* or activated).ti,ab,kw.	3236886
3	1 or 2	3328603
4	exp nurses/ or exp nursing/	335784
5	nurs*.ti,kw.	308822
6	((coordinat* or co ordinat*) and (organ* adj3 (donat* or donor* or procur* or transplant*))).ti,ab,kw.	1109
7	4 or 5 or 6	
8	exp adaptation, physiological/	
9	self care/ or exp exercise/	280598
10	(cope or coping or manag*or support* or resilien*).ti,ab,kw.	162533
11	((psycho* or adapt* or reduc* or hardiness or manag* or regulat* or defense or cognitive or distraction or support* or acceptance or assertiveness or lifestyle or assistance or wellness) adj2 (technique* or skill* or mechanism* or train* or strateg* or method* or approach* or practice* or behavio* or network* or restruct* or program* or choice* or educat* or therap* or system* or service*)).ti,ab,kw.	1008082
12	(exercis* or physical activit* or meditat* or breath* or mindfulness or decentering or distancing or autogenic or relaxation or grounding or self compassion* or self effica* or self regulat* or self heal* or self talk or self care or self sooth* or self kindness or behavio?r therap* or debriefing or social support*).ti,ab,kw.	900174
13	cognitive behavioral therapy/ or "acceptance and commitment therapy"/ or cognitive restructuring/ or mindfulness/	36478
14	resilience, psychological/	8349
15	emotional regulation/	2316
16	exp defense mechanisms/	51289
17	problem solving/	27244
18	self efficacy/ or self-compassion/	24511
19	exp relaxation/	21823
20	exp social support/	79746
21	exp behavior therapy/	89048
22	health promotion/	81320
23	((art or arts or music*) adj2 therap*).ti,ab,kw.	21363
24	art therapy/	1722
25	breathing exercises/ or relaxation therapy/ or self-control/ or meditation/ or psychosocial support systems/ or exp sensory art therapies/ or music therapy/ or exp autogenic rraining/	72942
26	or/8-25	2431591
		168862
		15851
29	ambulatory care/	46328
30	((acute or critical or intensive) adj2 (care or service* or unit*)).mp.	313269
31	((emergenc* or trauma) adj2 (room* or department* or care or service* or unit or units or cent* or ward or wards or treatment*)).mp.	281822
32	(operat* adj2 (room* or department*)).mp.	51704
33	(NICU or ICU or PICU).mp.	103273
34	exp intensive care units/	105436
35	intensive care units, pediatric/ or intensive care units, neonatal/	27327
36	exp transplantation/ or exp organ transplantation/ or exp "tissue and organ harvesting"/	569877
37	exp "Tissue and Organ Procurement"/	25393
38	(organ* adj3 (donat* or donor* or procur* or transplant*)).ti,ab,kw.	56822
39	exp critical care/	66482
40	or/27-39	1286471
41	3 and 7 and 26 and 40	2026
42	limit 41 to (english language and yr="2013 -Current")	1116

Notes:

- Search each database separately, save your search, document your search strategies and results
- Databases are unique, search one at a time, not aly controlled vocabulary e.g. MeSH Headings
- Use Boolean logic, AND, OR and search strategies that work
- Validate database search results filters e.g. language, date, format…
- Search all databases and download all citations for each database in one sitting
- Send/export all citations to Zotero
- Create RIS-formatted files for uploading to Covidence

- Set up Covidence
- Upload/import all citations as a bulk upload to Covidence
- Invite team members and define their roles
- Set up screening criteria based on your inclusion/exclusion screening criteria
- Screen titles and abstracts
- Document numbers for a PRISMA flow chart
- Screen full text citations
- Download final screening numbers and citations for data extraction

- Identify and agree upon who does what!
- Ask for assistance when appropriate!

Define your research question or topic
Identify key concepts & keywords
Build your search
Run your search
Evaluate results
Refine your search as necessary

Searching is a non-linear and potentially iterative process.

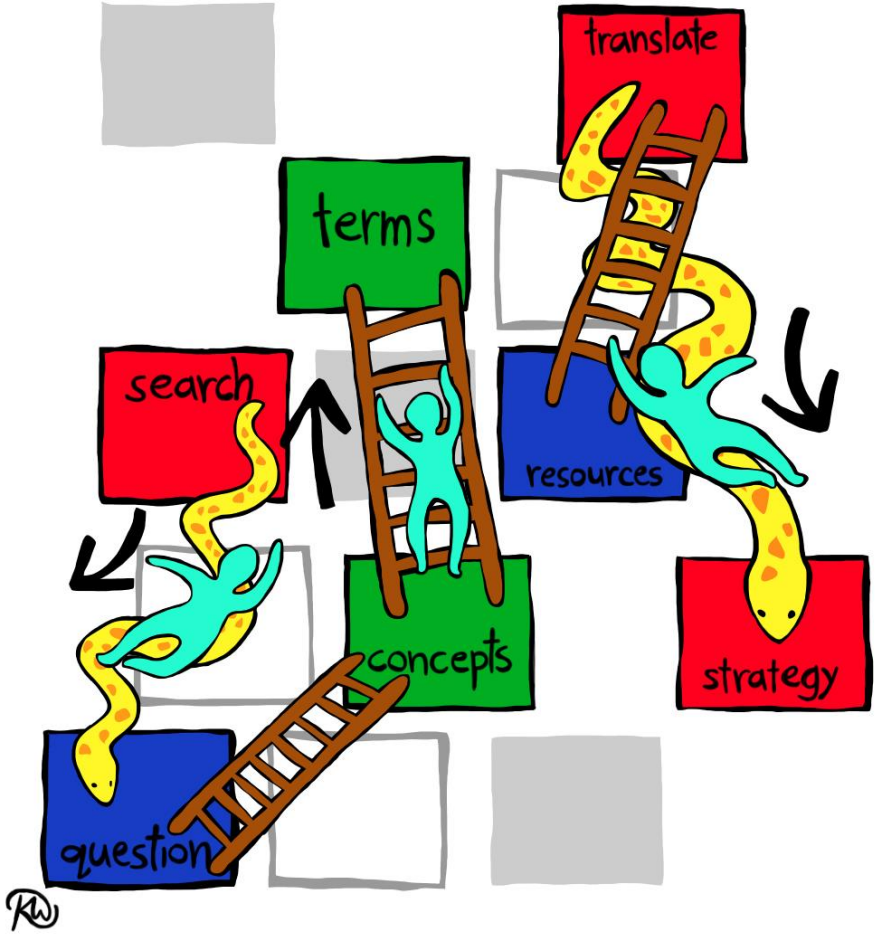


Image: McMaster Health Science Library https://hslmcmaster.libguides.com/c.php?g=716883&p=5113566

Screening Search Results

Best practices for screening

Create a screening tool with questions that are clear and concise.

Ensure that the screening tool is organized hierarchically, includes eligibility inclusion and exclusion criteria.

Two levels of screening 1. Titles/Abstracts 2. Full-text

Consider a text-mining screening tool prior to screening.

Conduct preliminary screening trainings to test the tool by screening a sample of 20 to 30 records.

Introduce team members to this process, their role, and screening tool e.g. Covidence.

Meet with the screening team to review issues, affirm definitions, suggest changes, share and reconcile disagreements.

Set deadlines, encourage screeners by limiting time on task, promoting intellectual buy-in, and providing incentives.

Analyze/document the process and decisions after screening has been completed.

End on time with documentation in hand.

Polanin, J. R., Pigott, T. D., Espelage, D. L., & Grotpeter, J. K. (2019). Best practice guidelines for abstract screening large-evidence systematic reviews and meta-analyses. Research Synthesis Methods, 10(3), 330–342. https://doi.org/10.1002/jrsm.1354

Screening stages

Need a third team member to resolve discrepancies

Title and abstract

- each reviewer scans the title and abstract for every study, applying the inclusion and exclusion criteria to determine relevance
- If there is disagreement between two reviewers, a third reviewer must be used to cast a final vote on including or excluding the study
  - record the number of studies excluded by this step in screening

Full text

- each reviewer reads the full text of the articles remaining after the first stage in screening, again applying the inclusion and exclusion criteria
- record the number of studies excluded by this step of full text screening
- this pool of articles will become the dataset for the review

Inclusion and exclusion criteria

Inclusion criteria are elements of resources that must be present in order to meet the needs of your topic, assignment, or focus. These elements must be present for you to consider using them in your final review. Some examples include:

- Peer-reviewed journal articles
- Published only in the past 5 years
- English only resources
- Resources focused on studying a specific population

Exclusion criteria are elements of resources that if found would disqualify them from being used in your final review. Sometimes these are closely related to your inclusion criteria, and may not be easily added to your search. Exclusions elements may need to saved for the evaluation stage of your review and considered while reading the full-text of the resources. Some examples include:

- Letters to the Editor or Commentaries on studies
- Studies with less than 100 participants evaluated
- Resources focused on wider population groups
- Methodological considerations and types of data collected

Systematic and Scoping Reviews
https://guides.library.ubc.ca/SystematicReviews

Screening with Covidence

+ web-based software platform streamlines evidence synthesis reviews
  - import citations from your reference manager
  - screen titles and abstracts
  - upload articles
  - screen full texts
  - create custom tables for data extraction
  - populate risk of bias tables
  - export
+ Brock's Covidence account
  - Unlimited reviews
  - Invite researchers from outside Brock
  - Extensive knowledge base

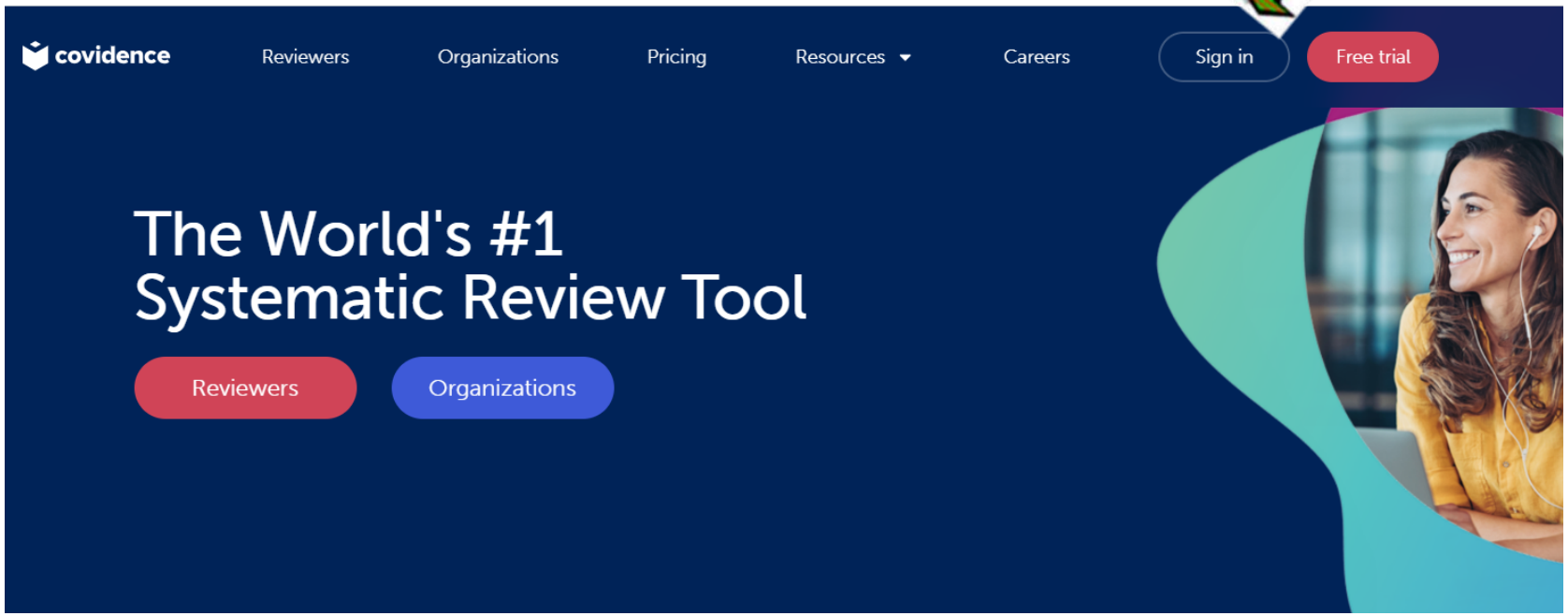
https://researchguides.library.brocku.ca/database-covidence

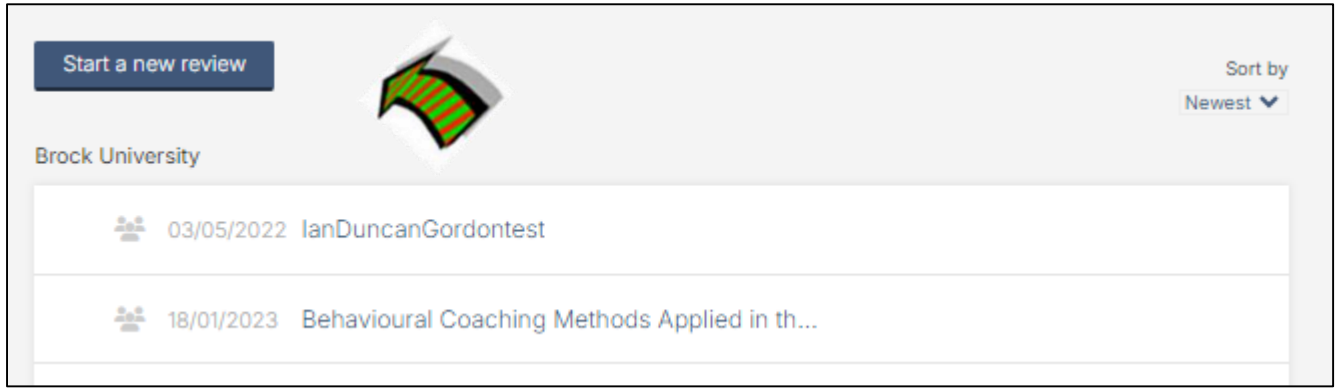
covidence

Covidence Individual Account Required

- This web-based software platform streamlines systematic reviews and other research reviews that require screening citations – title and abstract and/or full text -- assessing risk of bias, or and extracting study characteristics and outcomes.
- Users must create an account to utilize Brock's access to this tool.
- Find help and answers to FAQs in Covidence's online knowledge base.

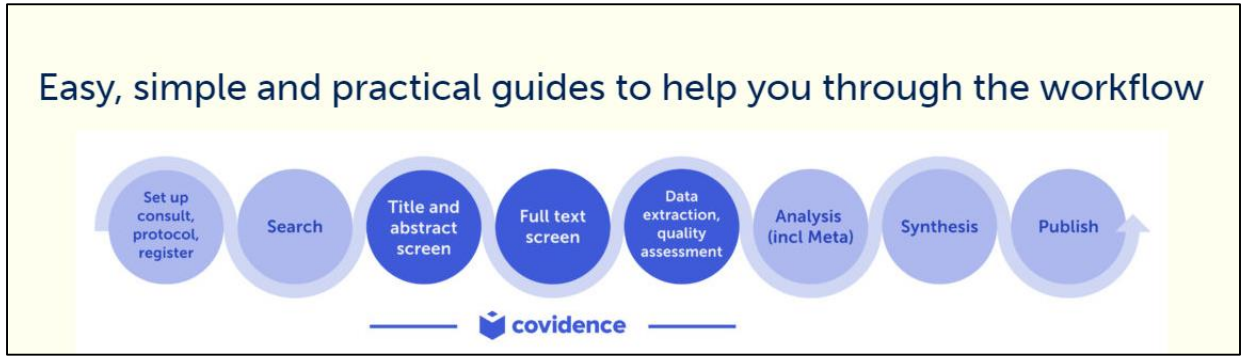
register for a Brock University account

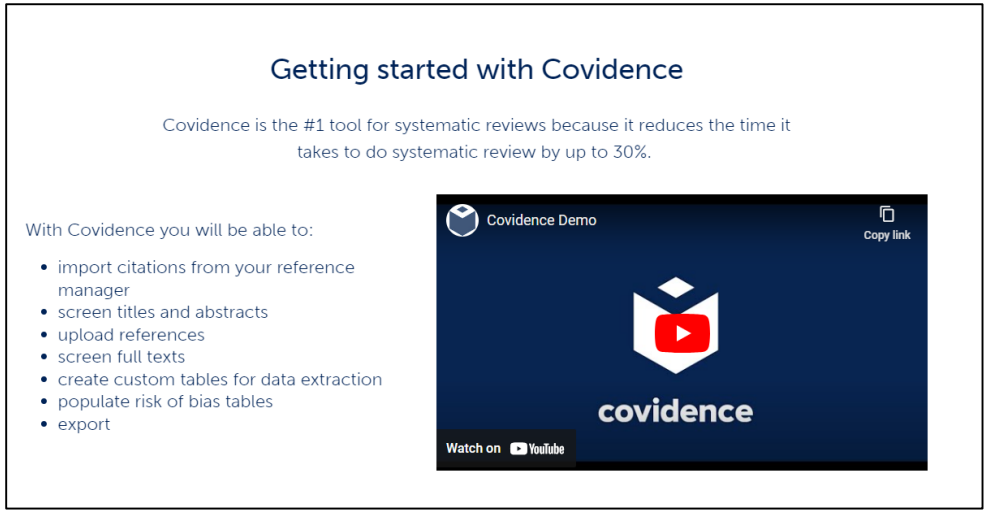




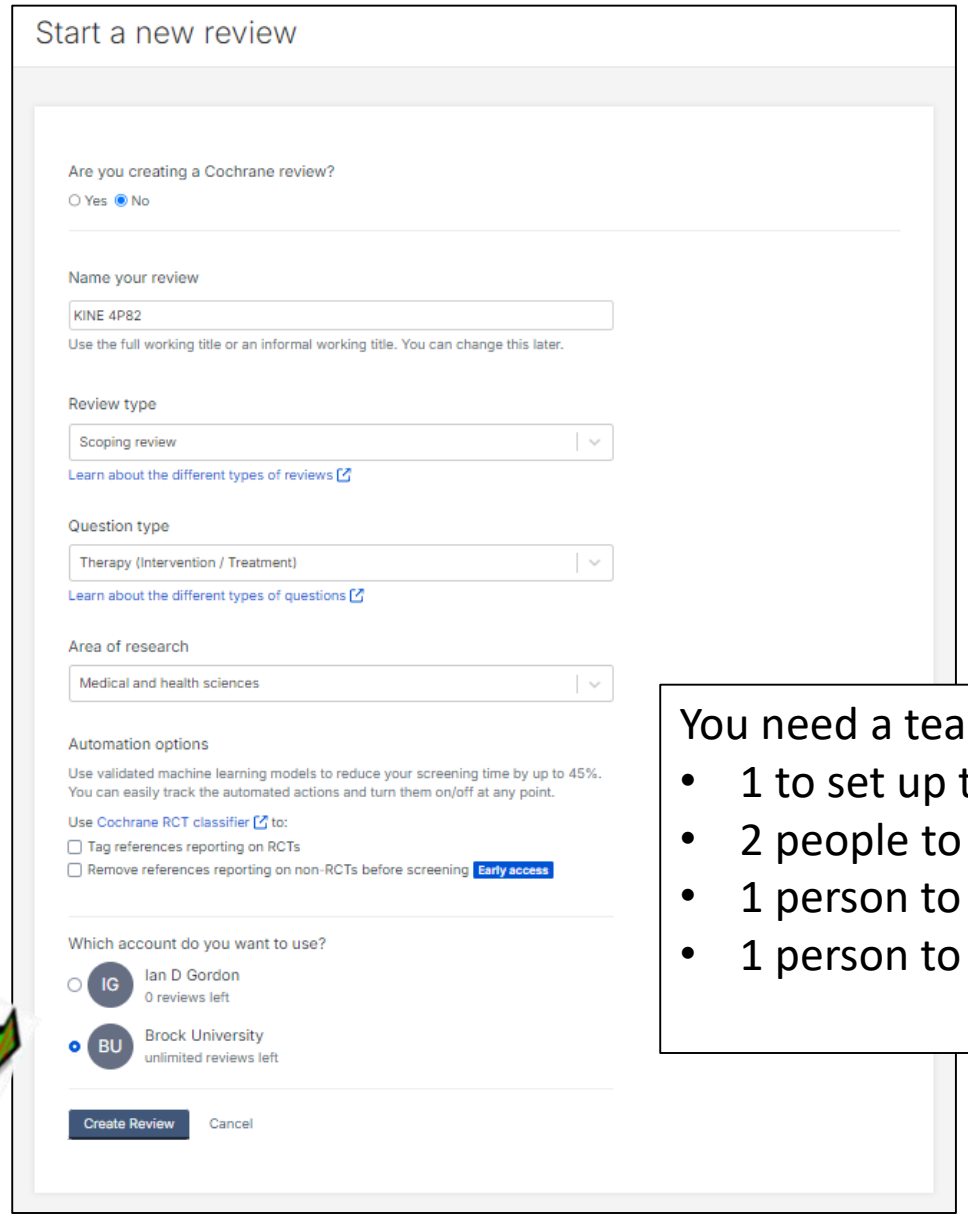
https://support.covidence.org/help/getting-started-with-covidence-new

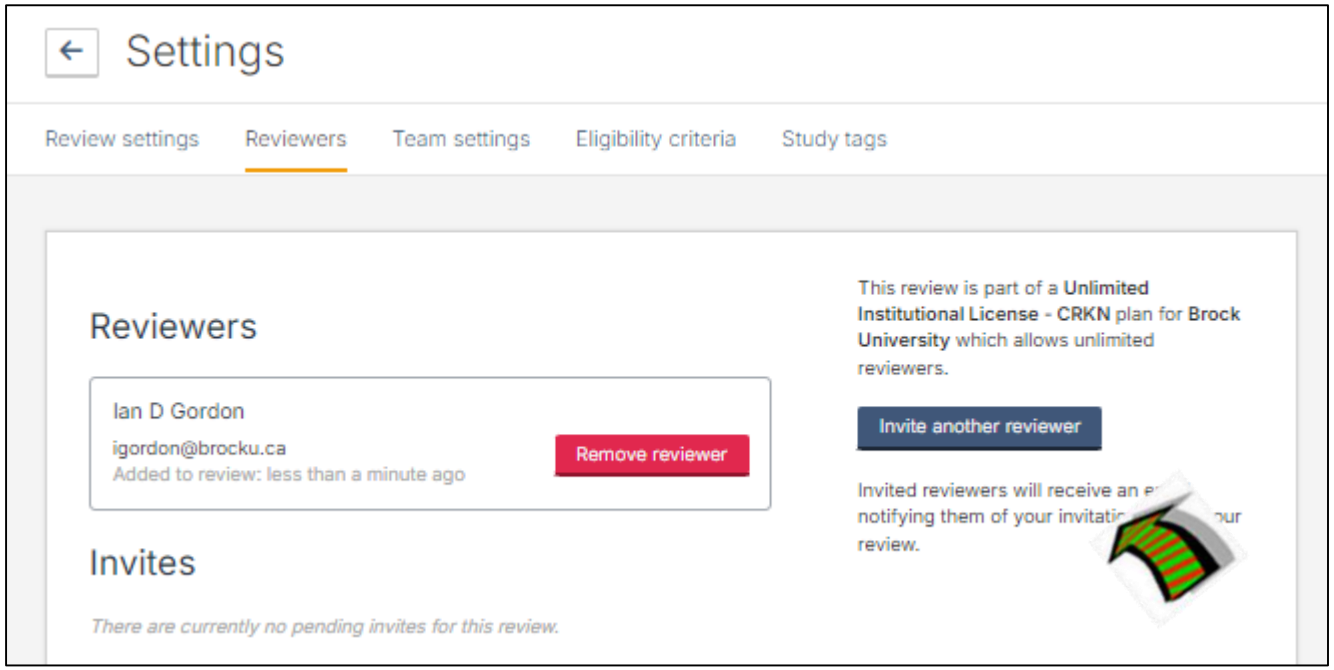
https://www.covidence.org/covidence-academy/





https://researchguides.library.brocku.ca/database-covidence

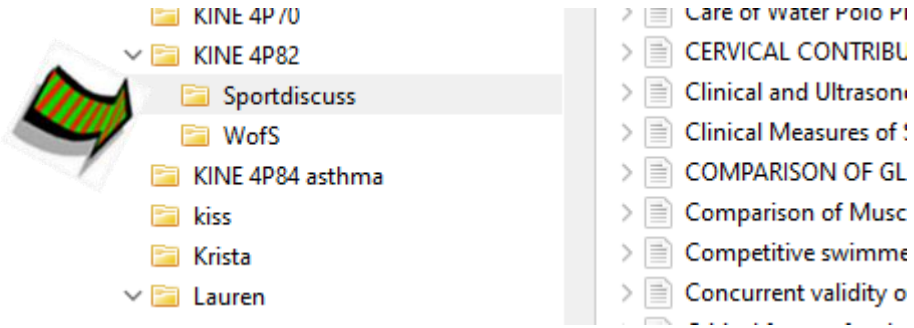




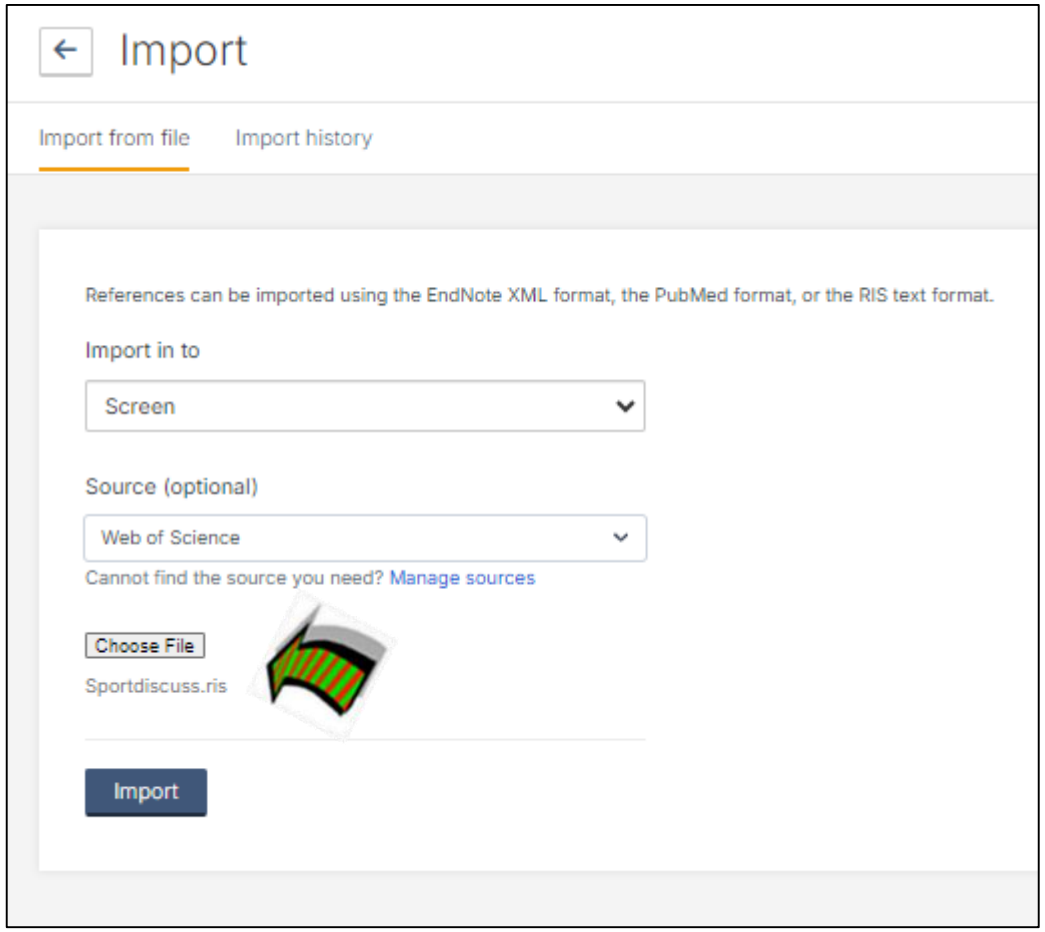
You need a team of at least 4 people, 5 would be best… all need to register.

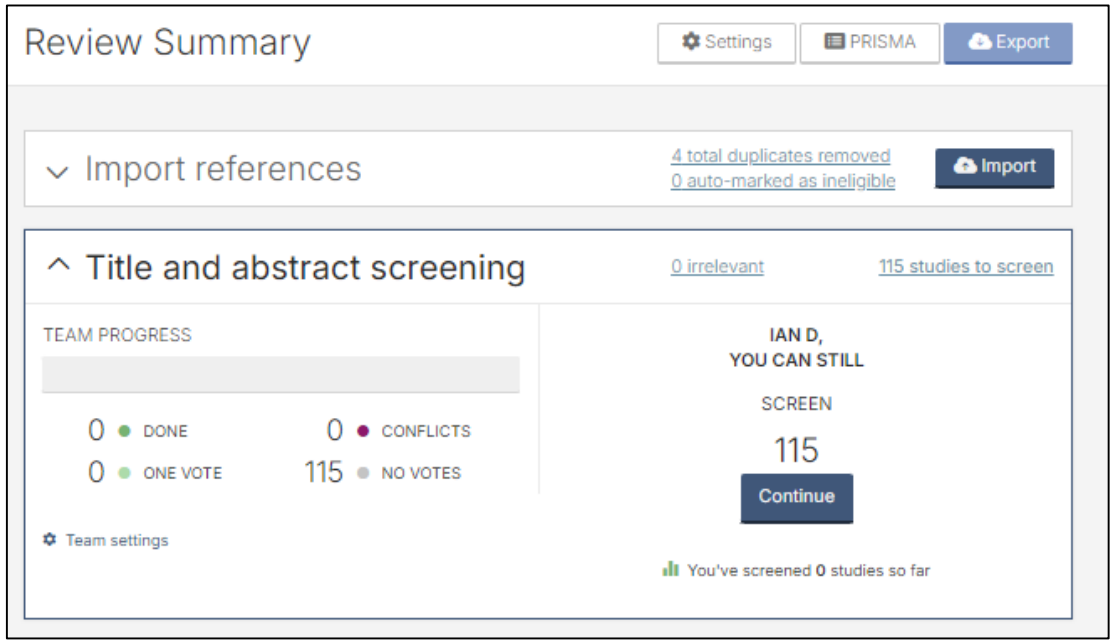
- 1 to set up the account, permissions/settings, roles and invite the other 3 or 4.
- 2 people to do the initial ti/ab screening.
- 1 person to do the ti/ab tie breaking
- 1 person to do the full text screening.

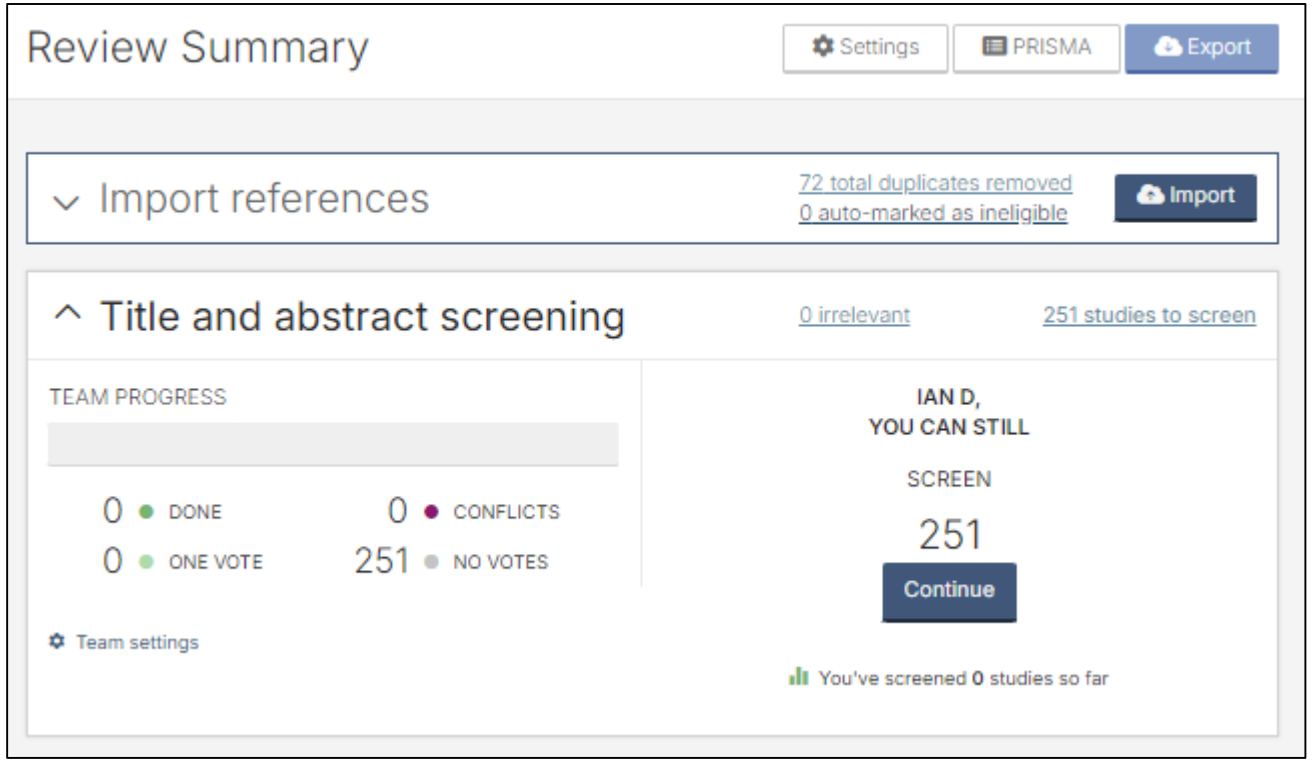
These last 2 can be the same person.



Right click on file, export Collection
e.g. Sportdiscuss in the default RIS format.
Save it where you can find it.
Open Covidence and then “Import” this file.







Import citations for each database search results e.g. WofS.

covidence

Title and abstract screening

Screen references 251 | Resolve conflicts 0 | Awaiting other reviewer 0 | Irrelevant references 0

All | Filter | Tags | Add criteria | Add highlights | Hide abstracts | Display: 25 | Most relevant

#312 - Gómez 2002

Upper extremity injuries in youth sports

Gómez, JE
PEDIATRIC CLINICS OF NORTH AMERICA 2002;49(3):593-+
2002
DOI: 10.1016/S0031-3955(02)00013-5

Abstract

This article provides an overview of common upper extremity injuries in youth sports, including injuries to the shoulder, elbow, and wrist. Pain in the shoulder and elbow is common among youngsters who participate in throwing sports, raquet sports, and swimming, while wrist pain is common among young gymnasts. Acute trauma to the shoulder and elbow can occur in almost any sporting activity. This article provides descriptions of common injuries and guidelines for treatment.

Note | History | Duplicate

No | Maybe | Yes

covidence

Review Summary

Settings | PRISMA | Export

Import references

72 total duplicates removed
0 auto-marked as ineligible

Import

Title and abstract screening

0 irrelevant

249 studies to screen

TEAM PROGRESS

0 DONE
0 CONFLICTS
2 ONE VOTE
249 NO VOTES

Team settings

IAN D,
YOU CAN STILL

SCREEN

249

Continue

You've screened 2 studies so far

Eligibility criteria

Highlights | Full-text exclusion reasons

Use the following features to help you screen and review studies:

- Add highlights to quickly identify relevant studies, with keywords that are likely to indicate inclusion or exclusion.
- Customise full-text exclusion reasons, and save time by listing these in order of importance and working down the list.
- Structure your review criteria using the PICOS framework to visualise during title & abstract and full-text review.

Population

Include | Exclude

Intervention / Exposure

Include | Exclude

Review settings | Reviewers | Team settings | Eligibility criteria | Study tags

Title and abstract screening

Team Progress

0 DONE | 0 ONE VOTE | 0 CONFLICTS | 0 NO VOTES

REVIEWER	CONTRIBUTION
Ian D Gordon	0

Rules

Everyone can do anything | Manage rules

Full text review

Reviewers required for screen

2

Reviewers required for full text review

1

Reviewers required for data extraction

2

Choose your extraction tool

Hide feature comparison

Review Summary

Settings | PRISMA | Export

Import references	0 total duplicates removed 0 auto-marked as ineligible	Import
Title and abstract screening	0 irrelevant	0 studies to screen
Full text review	0 excluded	0 studies to screen
Extraction	0 extracted	0 studies to extract

Title and abstract screening

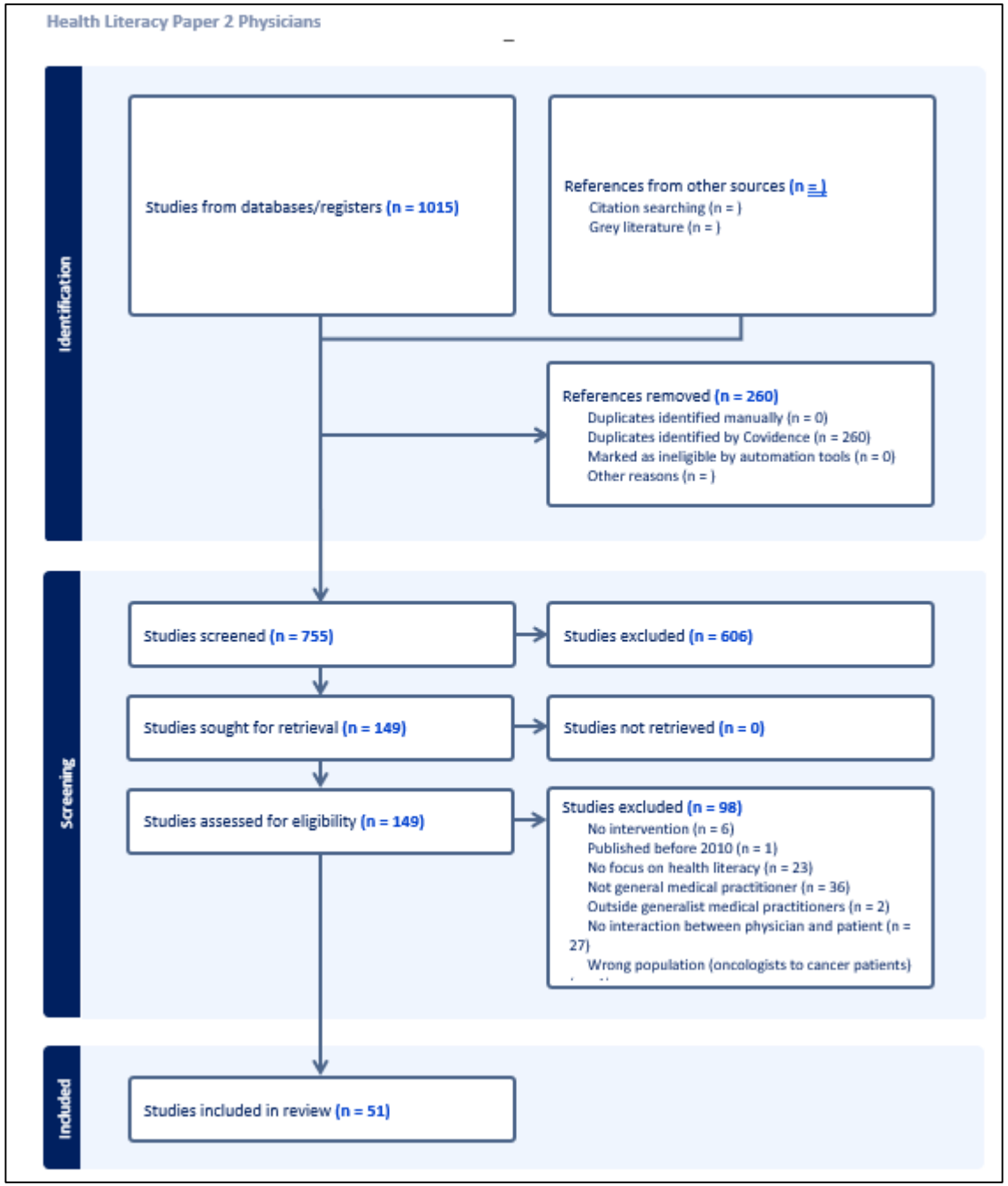
Team Progress

755 DONE | 0 ONE VOTE | 0 CONFLICTS | 0 NO VOTES

REVIEWER	CONTRIBUTION
	755
	754
	1
Ian D Gordon	0

Rules

Everyone can do anything | Manage rules


Health Literacy Paper 2 Physicians
Identification
Studies from databases/registers (n = 1015)
References from other sources (n =)
Citation searching (n =)
Grey literature (n =)
References removed (n = 260)
Duplicates identified manually (n = 0)
Duplicates identified by Covidence (n = 260)
Marked as ineligible by automation tools (n = 0)
Other reasons (n =)
Screening
Studies screened (n = 755)
Studies excluded (n = 606)
Studies sought for retrieval (n = 149)
Studies not retrieved (n = 0)
Studies assessed for eligibility (n = 149)
Studies excluded (n = 98)
No intervention (n = 6)
Published before 2010 (n = 1)
No focus on health literacy (n = 23)
Not general medical practitioner (n = 36)
Outside generalist medical practitioners (n = 2)
No interaction between physician and patient (n = 27)
Wrong population (oncologists to cancer patients)
Included
Studies included in review (n = 51)

Intro to data extraction

What is data extraction?

+ Data extraction answers the question “what do the included documents tell us?”

+ "The stage of data extraction involves **transcribing information reported in the primary studies to a standard form that has been developed to capture all relevant information in a format specific to the review question**" - Buscemi, N., Hartling, L., Vandermeer, B., Tjosvold, L., & Klassen, T. P. (2006). Single data extraction generated more errors than double data extraction in systematic reviews. *Journal of clinical epidemiology*, *59*(7), 697–703. https://doi.org/10.1016/j.jclinepi.2005.11.010

Why do we extract data?

Data is extracted to:

- Objectively and accurately summarize studies in a common format to facilitate synthesis and analysis
- Identify numerical data if a meta-analysis is to take place, and
- Obtain information to objectively assess the risk of bias in, and applicability of, studies.

Inform other processes

- Assessing quality of studies
- Planning the analysis

Data extraction example

		Animals					Intervention						microCT trabecular bone			
Study ID	Title	Species	Strain	Age	Sex	Sample size	LPS dosage	LPS administration	LPS Duration	LPS delivery schedule/ exposure duration	Age at Euthanasia	Skeletal site(s) analyzed	BV/TV	Tb.N	Tb.Th	Tb.Sp
Cao 2017	A High-Fat Diet Decreases Bone Mass in Growing Mice with Systemic Chronic Inflammation Induced by Low-Dose, Slow-Release Lipopolysaccharide Pellets	mice	C57BL/6	6-weeks	Female	n=12	1.5 ug/d	Slow-release pellets	greater than 2 weeks	13 weeks	19 weeks of age	microCT: distal & mid-diaphysis femur, LV2	Femur CON: 15.3 ± 1.7% Femur LPS: 11.8 ± 2.1% LV2 CON: 21.8 ± 3.3% LV2 LPS: 16.5 ± 1.6%	Femur CON: 4.13 ± 0.27 mm-1 Femur LPS: 3.91 ± 0.16 mm-1 LV2 CON: 4.04 ± 0.62 mm-1 LV2 LPS: 3.54 ± 0.52 mm-1	Femur CON: 0.06 ± 0.01 mm Femur LPS: 0.05 ± 0.01 mm LV2 CON: 0.07 ± 0.01 mm LV2 LPS: 0.06 ± 0.01 mm	Femur CON: 0.23 ± 0.02 mm Femur LPS: 0.26 ± 0.02 mm LV2 CON: 0.25 ± 0.06 mm LV2 LPS: 0.30 ± 0.05 mm
Chongwatpol 2015	Implications of compromised zinc status on bone loss associated with chronic inflammation in C57BL/6 mice	mice	C57BL/6J	8-weeks	Male	n=8	0.1 mg/kg/day	Slow-release pellets	greater than 2 weeks	4 weeks	18 weeks of age	DXA: LV4/LV5 microCT: proximal tibia, tibia mid-diaphysis, LV4 FEA (compression test): proximal tibia, LV4	Tibia CON 8.79 ± 0.93% LPS 6.76 ± 0.85% Vertebra CON 13.59 ± 1.39% LPS 10.12 ± 1.98%	Tibia CON: 3.56 ± 0.17 1/mm LPS: 3.28 ± 0.28 1/mm LV4 CON: 2.81 ± 0. 23 1/mm LPS: 2.11 ± 0.23 1/mm	Tibia CON: 0.049 ± 0.006 mm LPS: 0.048 ± 0.006 mm LV4 CON: 0.046 ± 0.003 mm LPS: 0.043 ± 0.003 mm	Tibia CON: 0.276 ± 0.017 mm LPS: 0.296 ± 0.037 mm LV4 CON: 0.29 ± 0.06 mm LPS: 0.39 ± 0.06 mm
Dou 2016	Dihydroartemisinin attenuates lipopolysaccharide-induced osteoclastogenesis and bone loss via the mitochondria-dependent apoptosis pathway	mice	C57BL/6J	8-weeks	Female	N/A	5 mg/kg	Injection	greater than 2 weeks	3 x/week	12 weeks (4 weeks of injections)	femur	CON 18.11 ± 1.18 LPS 8.91 ± 0.95	CON 4.11 ± 0.20 per mm LPS 0.47 ± 0.03 per mm		
Droke 2007	Soy isoflavones avert chronic inflammation-induced bone loss and vascular disease	mice	C57BL/6J	8-weeks	Female	n=12-13	1.33 ug/d	Slow-release pellets	greater than 2 weeks	30 days	12 weeks of age	microCT & FEA: distal femur	CON: 8.80 ± 0.0346% LPS: 6.34 ± 0.0346%	CON: 3.89 ± 0.520 1/mm LPS: 3.25 ± 0.520 1/mm	CON: 0.051 ± 0.0003 mm LPS: 0.052 ± 0.003 mm	CON: 0.27 ± 0.0346 mm LPS: 0.32 ± 0.0346 mm

Bott, Kirsten, 2022, "Lipopolysaccharide induced bone loss in rodent models: a systematic review and meta-analysis", https://doi.org/10.5683/SP3/REEPYJ, Borealis, V1

Reducing bias in data extraction

Performed by two reviewers independently to:

- Reduce bias
- Enhance accuracy

Each reviewer must use same, standardized form

- enhances reliability of results
- Minimizes potential for error

Requires process for resolving discrepancies

Data extraction is …

Laborious and time consuming

Expect to spend about 2 hours/paper

Introduction to critical appraisal

Reporting your results

Summing up

Screening studies is a two-step process

- Must be done by a team to reduce bias
- Guided by inclusion & exclusion criteria

Carefully plan data extraction

- Use a standardized form for all team members
- Pilot test, reliability test

Use tools and checklists to guide:

- Critical appraisal
- Reporting results – including your data collection (search)

All these processes are facilitated by Covidence

Photo by Tim Gouw on Unsplash

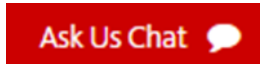
Where can I get help?

Brock Library Help
https://brocku.ca/library/research-support/

Brock Library Research Guides
https://researchguides.library.brocku.ca/

Email the Library
libhelp@brocku.ca

Ask Us Chat service
https://brocku.ca/library/chat/



Book a Consultation
https://calendar.library.brocku.ca/appointments/researchconsultation

Make an Appointment Research Consultation

Your Librarian can help you:

- use the best search tools for your assignments
- find information sources on your specific topic
- develop effective research strategies
- become a confident and independent researcher

1. Select One

Librarian

- Ian Gordon (he/him)
- Jennifer Thiessen
- Elizabeth Yates
- Denise Smith
- Vanja Stojanovic

2. Select Date:

Oct 2024

Su	Mo	Tu	We	Th	Fr	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

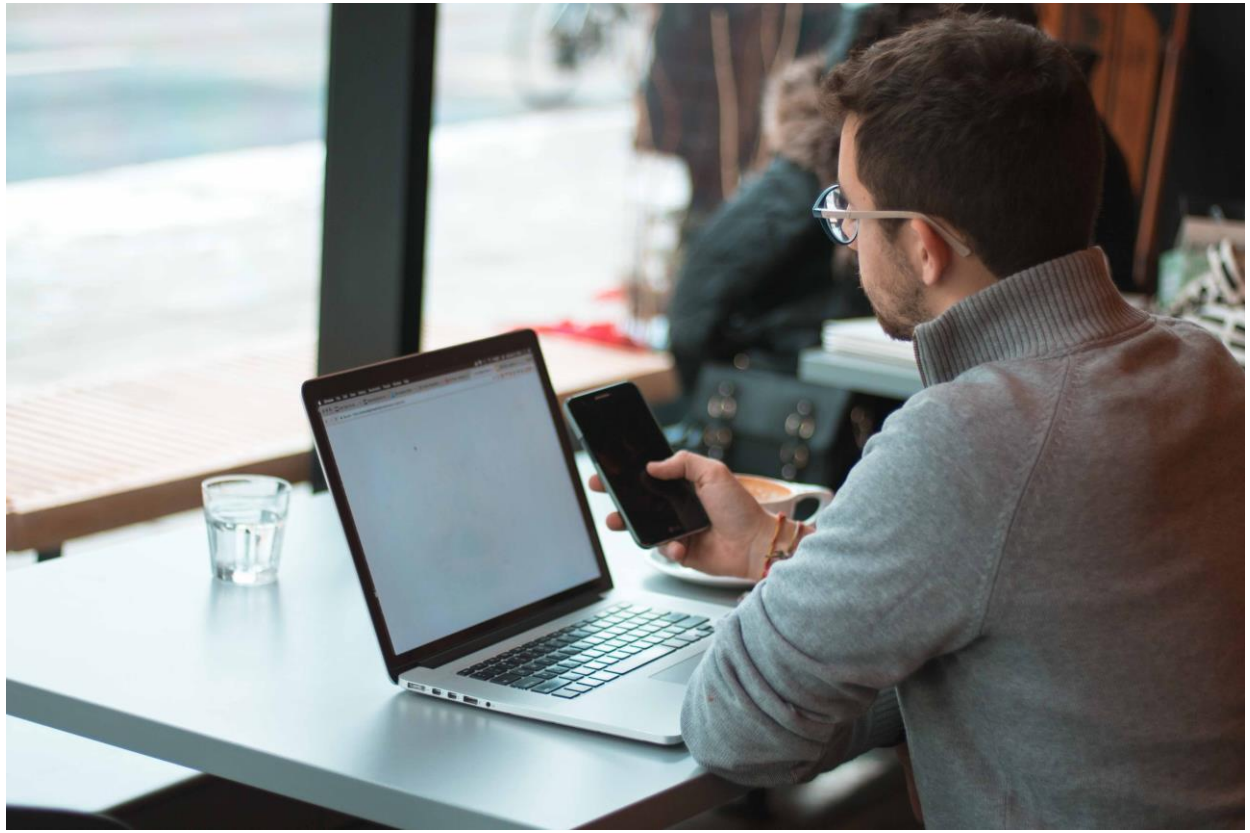
3. Select Time:

Tuesday, October 8, 2024

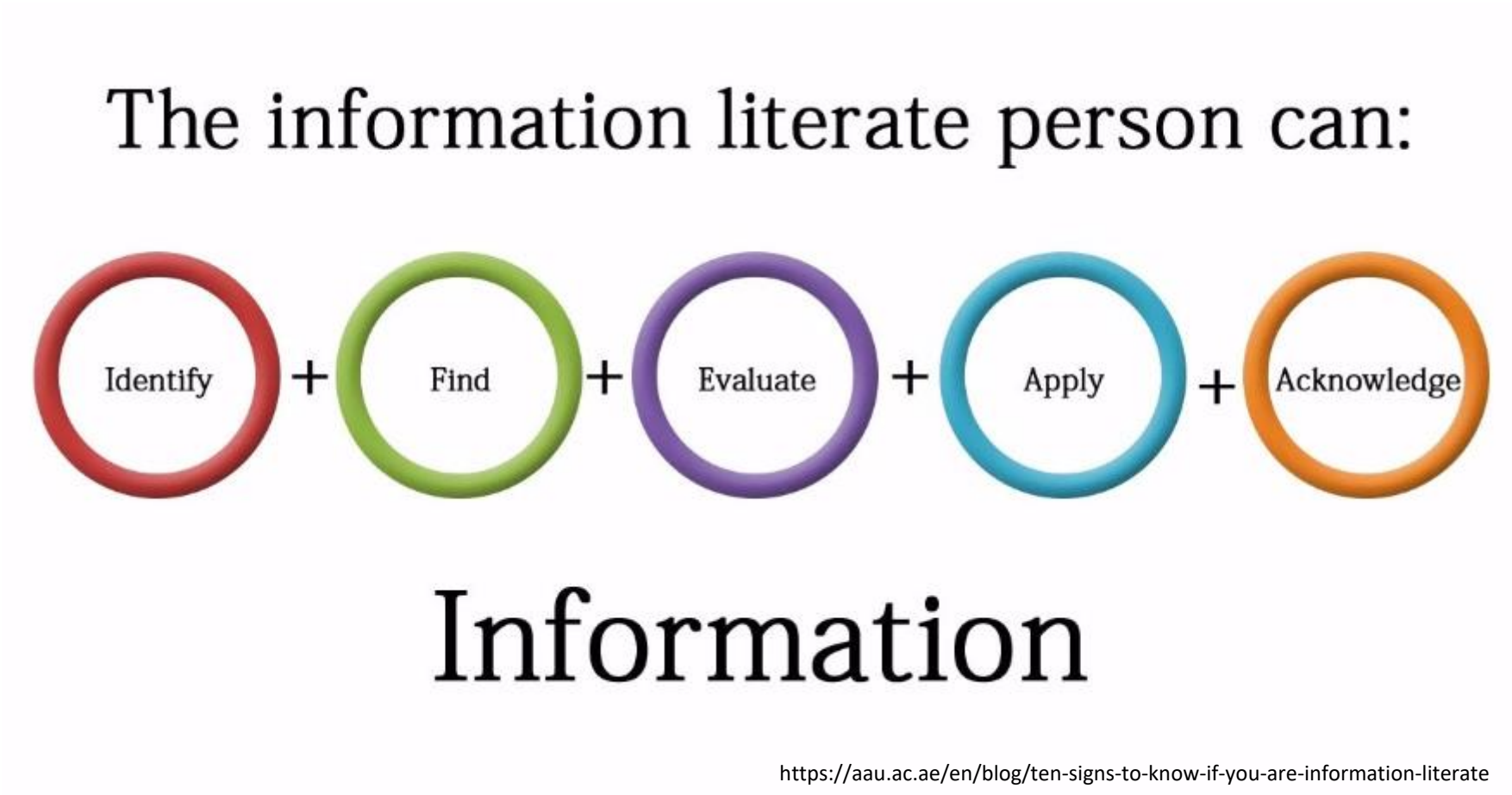
Time Zone: Eastern Time - US & Canada (change)

9:00am	9:30am	10:30am
12:00pm	12:30pm	1:00pm
1:30pm	3:00pm	3:30pm

Continue



Man sitting near table with laptop photo by Joseph Frank on Unsplash



https://aau.ac.ae/en/blog/ten-signs-to-know-if-you-are-information-literate

Ian Gordon

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QUESTIONS